325

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3924 MEADE ST.
DENVER, COLORADO

CONTENTS

TRADE NAME	MODEL	SET AND FOLDER No.
Admiral	Chassis 20SY4H, HF & Radio Chassis 3D1B, C Tel. Rec.	325-2
Airline	GSE-1625A, GSE-1626A	325-3
Automatic	MP-69, MP-126	325-4
Ford	66MF (FDR-18805-B1)	325-5
General Electric	895	325-6
Hallicrafters	17TS700M, MA, 17TS710T, TA, 17TS720T, TA, 17TS730TA (Ch. A2003, B2003) Tel. Rec.	325-7
Magnavox	Chassis CMUA455BB, CMUA456BB, CMUA458BB, CB, CMUD447BB, CB, CMUD455BB, CMUD457BB, CTA455BB, CTA456BB, CTA458BB, CB, CTD447BB, CB, CTD455BB, CTD457BB (350 Series) Tel. Rec. Prod. Chg. Bul. 162	325-1
Motorola	66C1, 66C2 (Ch. HS-458)	325-8
Philco	18D3120C, G, L, M, UC, UG, UL, UM, 18D3122, U, 22D4029G, L, 22D4030E, L, UE, UL, 22D4032, 22D4131, L, 22D4136L, U, UL, XL, XW, 22D4138, L, U, UL, 22D4150, L, U, UL, 22D4153, L, X, XL, 22D4154, U, 22D4158, U, 22D4320L, M, T, W (Ch. TV330, U) Tel. Rec.	325-9
Rauland	HF255	325-10
Sentinel	1U-355P	325-11
Silvertone	5160, 5170, 6100, 6106, 6108, 6110, 6114, 6116, 6120, 6126, 6128, 6130, 6170, 6172, 6190, 6192, 6192A (Ch. 528.37700, 1, 2, 528.38200, 1, 2, 3, 4, 5, 528.38400, 1, 2, 3, 4, 528.38800, 1, 528.39000, 1, 2, 528.39100, 1, 2, 528.39200, 528.45100 & Radio Ch. 528.40300) Tel. Rec.	325-12
Steelman	3A18U	325-13
Truetone	D2637A	325-14
Truetone	2D-1512A, 2D-1514A, B, 2D-1524A, 2D-2525A, B (Code 21T35) Tel. Rec. Prod. Chg. Bul. 162	325-1
Westinghouse	H-547T5, H-548T5, H-549T5, H-550T5 (Ch. V-2261-1)	325-15
Wilcox-Gay	5F Series Recorder	325-16
Zenith	Y832E, R (Ch. 8Y02)	325-17

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SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 8 IN SET 291

Magnavox Chassis CMUA455AA, CMUA456AA, CTA455AA and CTA456AA (350 Series) were covered in Photofact Folder 8 — Set 291.

Chassis CMUA455BB, CMUA456BB, CMUA458BB, CMUA458CB, CMUD447BB, CMUD447CB, CMUD455BB, CMUD457BB, CTA455BB, CTA456BB, CTA458BB, CTA458CB, CTD447BB, CTD447CB, CTD455BB, CTD457BB (350 Series) are electrically identical to the chassis covered, except for the following changes.

COMPONENT CHANGES

R42 is decreased from 5.6KΩ to 4.7KΩ.

R76 is increased from 68KΩ to 180KΩ.

R82 is omitted.

R84 is decreased from 1Meg to 470KΩ.

R86 is increased from 1.5Meg to 1.8Meg.

R92 and R93 are increased from 180Ω to 220Ω.

R107 is increased from 10KΩ to 18KΩ.

C90 and C91 are increased from .022MFD to .047MFD.

A choke coil is added from C89 to pin 8 of V18.

NEW POWER TRANSFORMER

The power transformer (T1) is changed to part #300079-1. Replacement data is given below.

MERIT	STANCOR	THORDARSON
P-2838①	P-8333	26R30U①②③

① Use high voltage secondary tap.

② Parallel and phase high current 6.3 volt filament windings.

③ Use low secondary tap.

NEW DEFLECTION CIRCUIT COMPONENTS

The horizontal output transformer (T2) is changed to part #360632-1.

The vertical output transformer (T3) is changed to part #320254-1.

The deflection yoke (T4) is changed to part #360617-1.

The horizontal linearity coil (T5) is changed to part #360631-1.

Following is the replacement data for the above named parts.

MAGNAVOX CHASSIS CMUA455BB, CMUA456BB, CMUA458BB, CMUA458CB, CMUD447BB, CMUD447CB, CMUD455BB, CMUD457BB, CTA455BB, CTA456BB, CTA458BB, CTA458CB, CTD447BB, CTD447CB, CTD455BB, CTD457BB (350 SERIES)

PRODUCTION CHANGES
BULLETIN 162

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA							
		Magnavox PART No.	Halldorson PART No.	Merit PART No.	RCA TYPE No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T3	Vert. Out. Trans.	320254-1	Z1806	A-3039	226T1	V312	A-8141	26S54	A-104X
T4	Yoke	360617-1	DF607①	MDF-72①	235D1①	Y90F19/43	DY-16A①	Y-16①	Y-41-1①

① Use original yoke network.

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	The following changes apply only to the chassis so designated. Chassis CMUA455BB, CMUA456BB, CMUA458BB, CTA455BB, CTA456BB and CTA458BB employs a feedback network in the audio output stage. A partial schematic is given in Fig. 1 showing the revised circuit.
	Chassis CMUD447BB, CMUD455BB, CMUD457BB, CTD447BB, CTD455BB and CTD457BB employs a 6W6 as a voltage regulator and a separate audio output stage is used. A partial schematic is given in Fig. 2 showing the voltage regulator circuit. C62 is decreased from .01MFD to 800MMF. C48 is decreased from .22MFD to .1MFD.
	Chassis CMUA458CB, CMUD447CB, CTA458CB and CTD447CB utilizes a different UHF tuner (part #700530). A schematic of this tuner is given in Fig. 3. V4 and V5 are changed from 6CB6's to 6BZ6's. R30 is decreased from 10KΩ to 6.8KΩ. R34 is decreased from 15KΩ to 12KΩ. C42 is increased from 680MMF to 1500MMF. R38 is decreased from 10KΩ to 8.2KΩ. R39 is decreased from 220Ω to 120Ω. C41 is increased from 680MMF to 800MMF. R44 is increased from 18KΩ to 27KΩ.

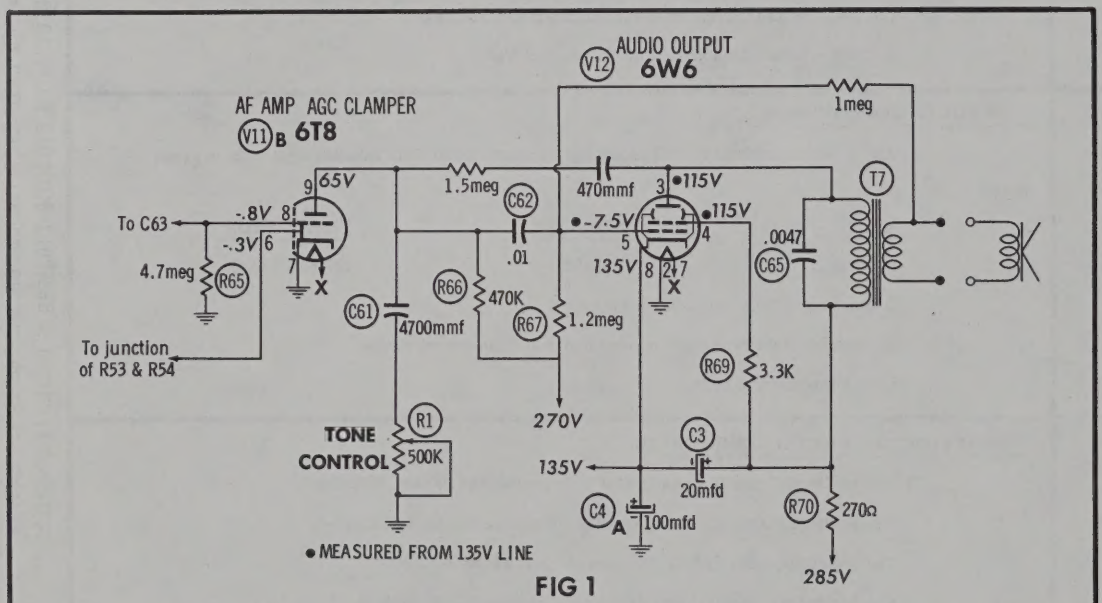


FIG 1

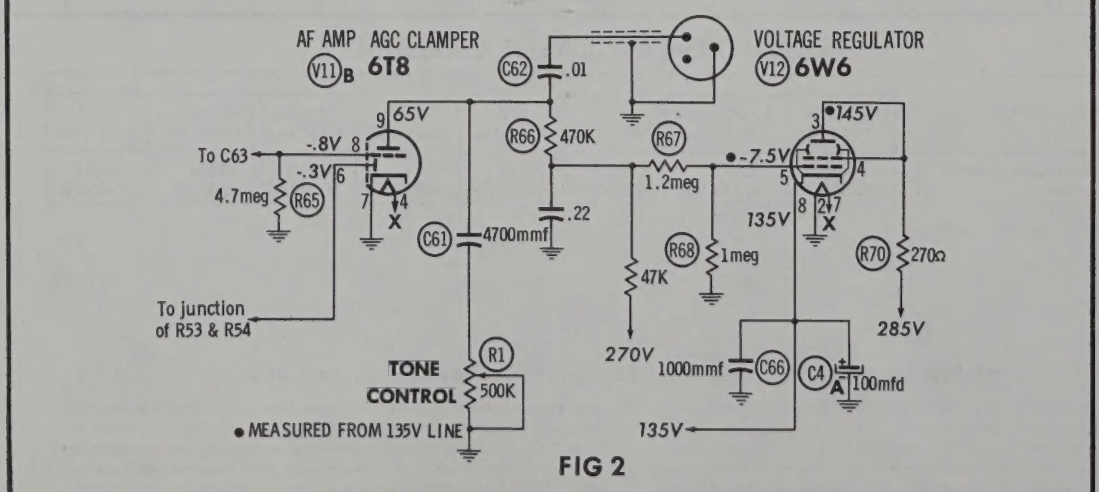


FIG 2

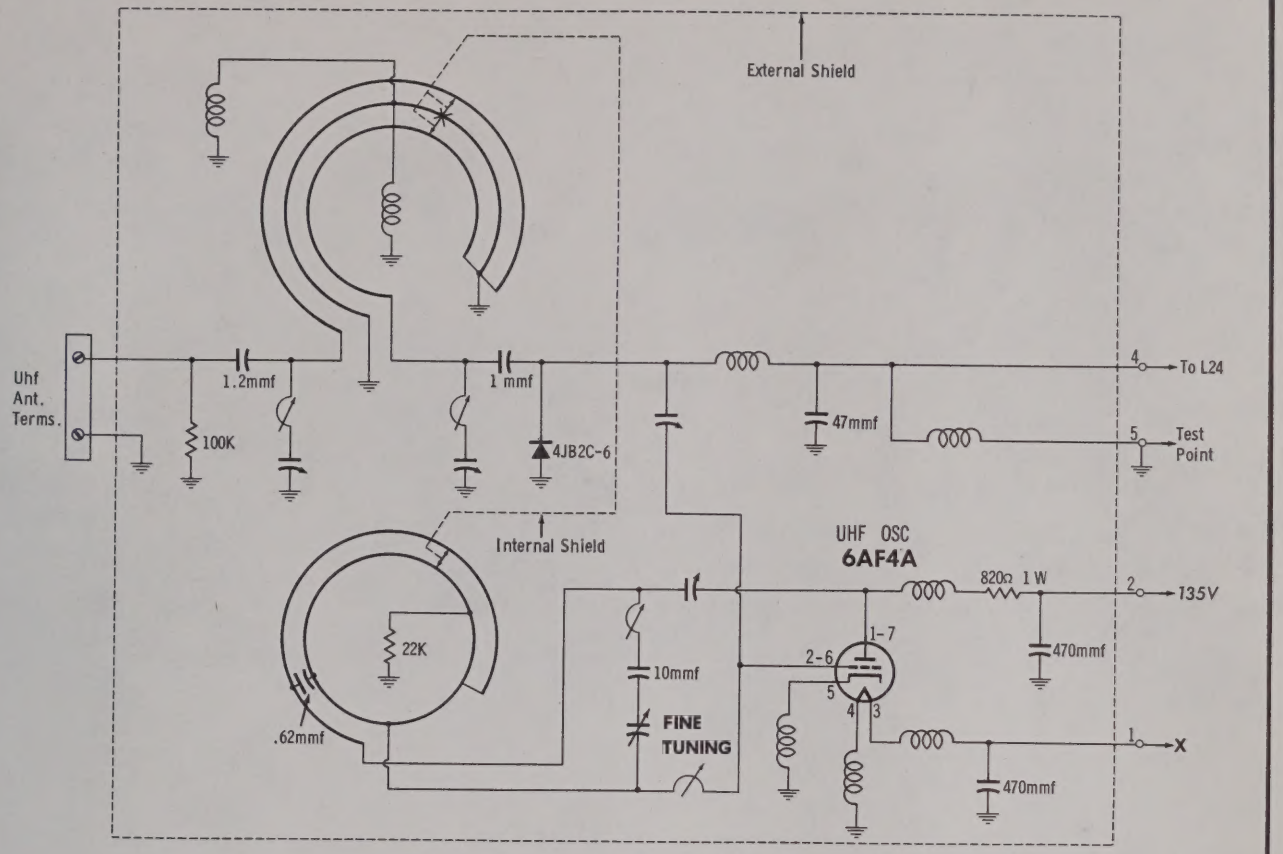


FIG 3

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 13 IN SET 315	
	Truetone Models 2D-1512A, 2D-1514A and 2D2525A (Code 21T35) were covered in Photofact Folder 13 — Set 315. Models 2D-1514B, 2D-1524A and 2D-2525B are added, along with late production changes, with the publication of this bulletin.
	Model 2D-1524A is electrically identical, except for the following changes. The picture tube is changed from 21ALP4 to 24DP4A. The picture and volume control (R1) is changed to part #10A-23714. A 5000MMF capacitor and a 330KΩ resistor are added from the insulated lug on the volume control to ground.
	The following production changes apply to all models. TO PREVENT AUDIO OSCILLATION R43 is added from the center arm of the volume control to pin 7 of V9.
	TO INCREASE SOUND SENSITIVITY R37 is increased from 100KΩ to 470KΩ. C53, 1000MMF, added from pin 9 of V7 to ground.
	TO INCREASE VERTICAL SIZE R60 is decreased from 3.9Meg to 3.3Meg.
	TO INCREASE HORIZONTAL SIZE A 22MMF, 5000V capacitor is added in parallel with C85.

TRUETONE MODELS 2D-1512A, 2D-1514A, 2D-1514B, 2D-1524A, 2D-2525A, 2D-2525B (Code 21T35)

(Con't on reverse side)

	TO IMPROVE VERTICAL STABILITY R57 is increased from 68KΩ to 82KΩ.
	TO IMPROVE FOCUS Pin 6 of V16 is disconnected from boost and reconnected to the 245 volt line.

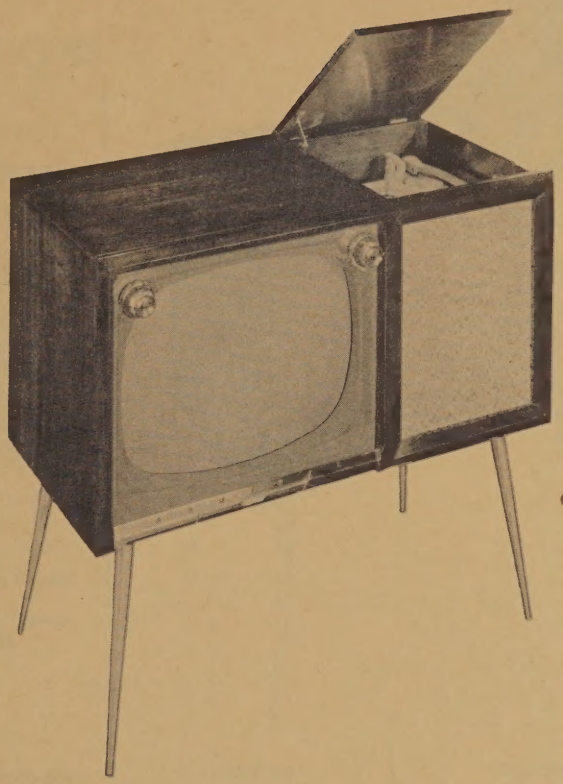
PHOTOFACT* Folder
*TRADE MARK

ADMIRAL CHASSIS 20SY4H, HF & Radio Chassis 3D1B, C

IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . unless it has been purchased as part of a complete volume of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.



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ADMIRAL CHASSIS 20SY4H,
HF & Radio Chassis 3D1B, C

ADMIRAL MODEL LS23B6N

TRADE NAME	Admiral Models LS23B6, LS26B6N (Ch. 20SY4H and Radio Ch. 3D1B or 3D1C)
MANUFACTURER	Admiral Corp., 3800 W. Cortland St., Chicago 47, Illinois
TYPE SET	TV-Radio-Phono Combination Receiver
TUBES	Twenty-four
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING 1.64 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier) Radio Tuning 540-1620KC, AM IF 455KC

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RECORD CHANGER ADMIRAL MODEL RC-654

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DISASSEMBLY INSTRUCTIONS

TV CHASSIS REMOVAL

1. Remove 5 push-on type control knobs from front panel of cabinet.
2. Remove 11 wood screws and 2 metal screws. Remove rear cover.
3. Remove 2 wood screws holding AC interlock bracket and 2 wood screws holding antenna terminal bracket.
4. Disconnect radio-phono power plug, speaker plug, audio plug, dial light plug, on/off volume and contrast control plug, front panel control plug, yoke plug, HV lead and picture tube socket.
5. Remove ion trap and centering magnet assembly.
6. Remove wing nut holding yoke and remove yoke.
7. Remove 3 bolts holding tuner assembly bracket to cabinet top.
8. Remove 4 chassis bolts. Remove chassis.
9. Remove 2 wood screws holding control panel assembly to cabinet, also unclip on/off volume and contrast control assembly from inside cabinet front.

RADIO CHASSIS REMOVAL

1. Remove 17 wood screws. Remove rear cover.
2. Remove radio-phono power plug and audio plug.
3. Remove phono motor plug, phono input plug and 2 radio antenna plugs.
4. Remove 4 push-on type control knobs. Remove 7 wood screws holding chassis to cabinet. Remove chassis.

SPEAKER REMOVAL

1. Disconnect plug from TV chassis.
2. Remove 8 speaker nuts. Remove 2 speakers.

NOTE: If it is necessary to remove TV chassis for servicing, it is also necessary to remove the speakers. The audio output transformer is mounted on one of the speakers and must be connected for proper operation.

MODELS	CHASSIS
LS23B6, LS23B6N	20SY4H And Radio Ch. 3D1B or 3D1C

ADMIRAL CHASSIS 20SY4H,
HF & Radio Chassis 3D1B, C

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF tuner oscillator circuit may be accomplished by removing the channel selector and fine tuning knobs.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 5 push-on type control knobs from front panel of cabinet. Remove 4 wood screws holding metal strip at the top edge of the safety glass. Remove metal strip and safety glass. Use extreme caution when removing safety glass.

SERVICE ADJUSTMENT LOCATION

See tube placement chart on page 5.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Adjustment of the horizontal oscillator circuit can be done by adjusting the flexible shaft at the back of the set. Adjust the horizontal hold until the picture synchronizes horizontally.

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (L26) located on the bottom of the chassis. Adjustment can be made from the top of the chassis by inserting alignment tool thru hollow hex slug (primary adjustment) to bottom adjustment of L26.

FUSES

One fuse is used for LV power supply protection. (For location see tube placement chart). (Not used in some versions.).

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube, located flush against the deflection yoke. Rotate the two rings around the neck of the tube until the picture is properly centered.

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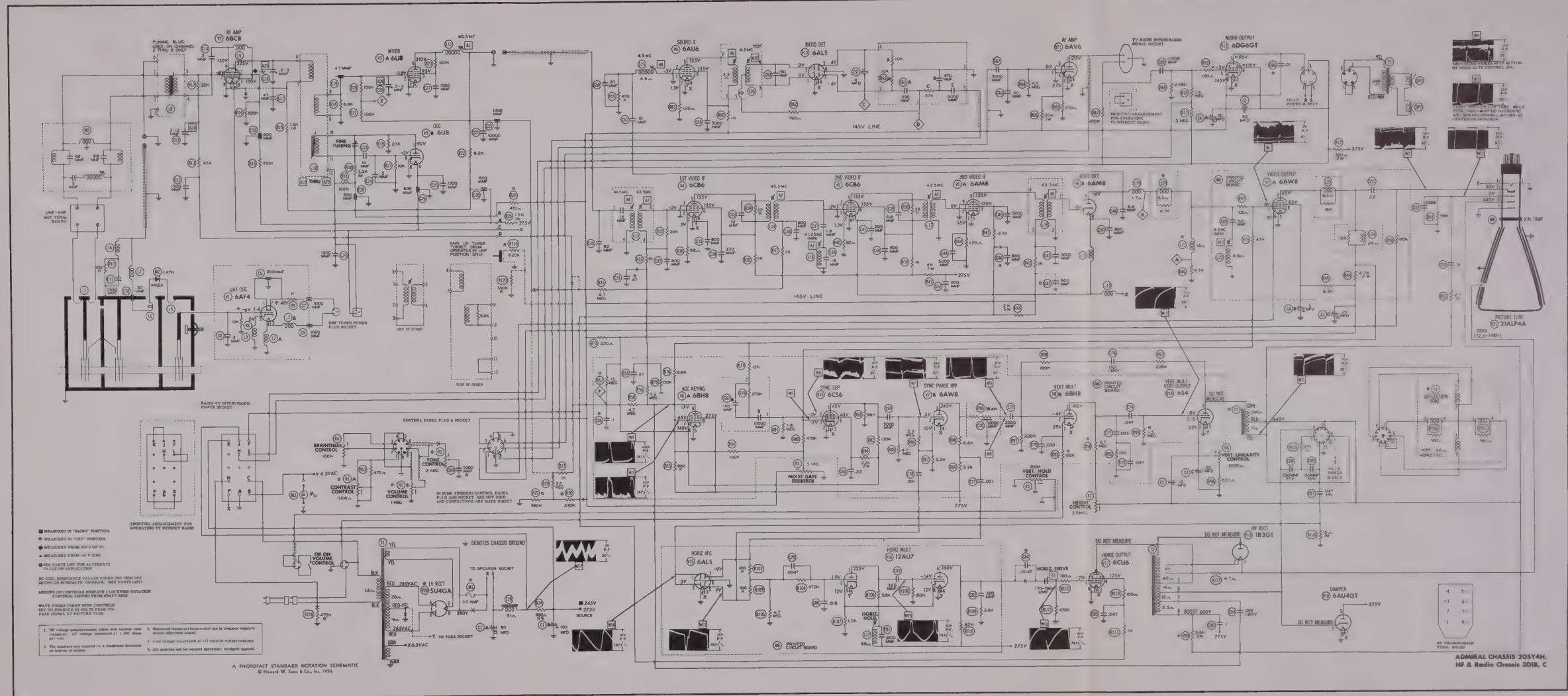
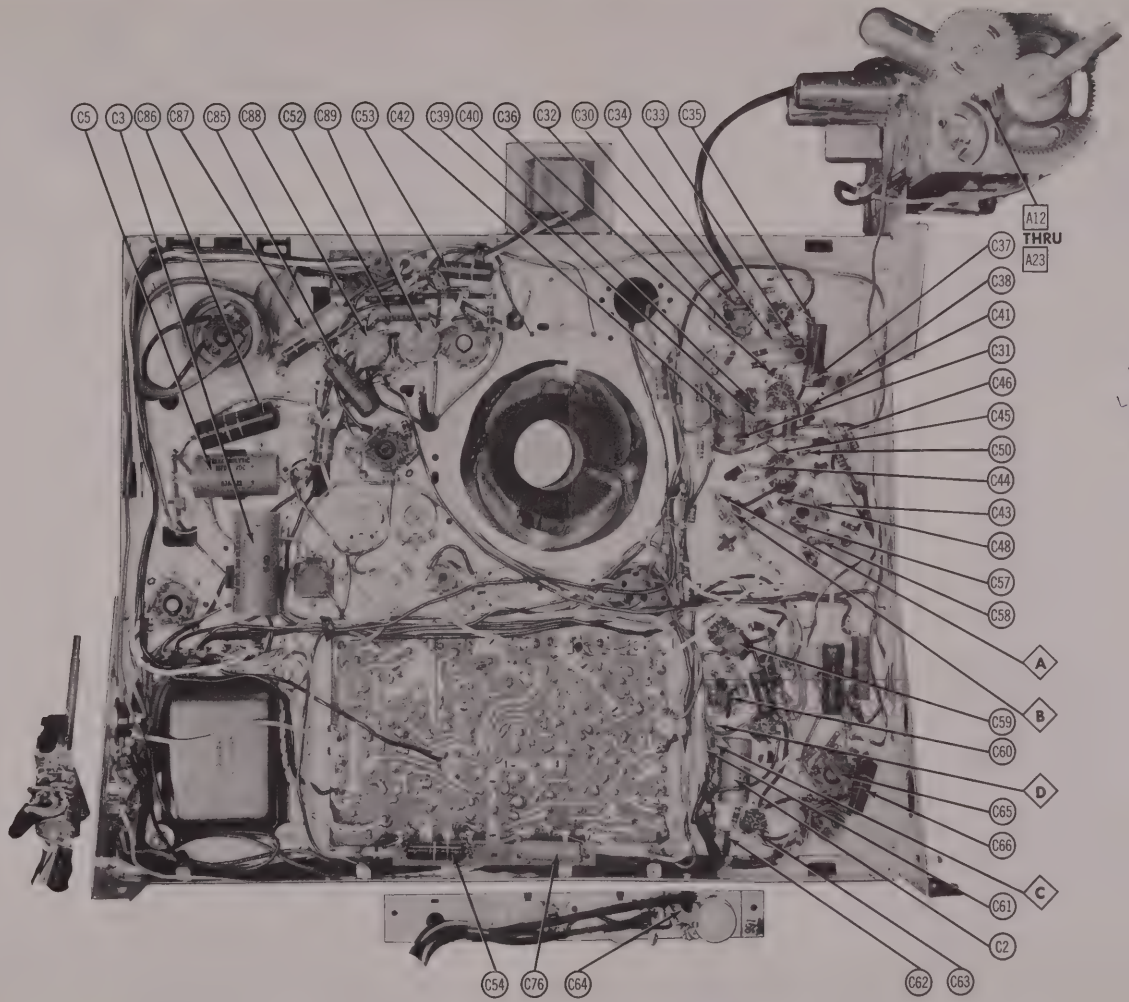


ADMIRAL CHASSIS 20SY4H,
HF & Radio Chassis 3D1B, C



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

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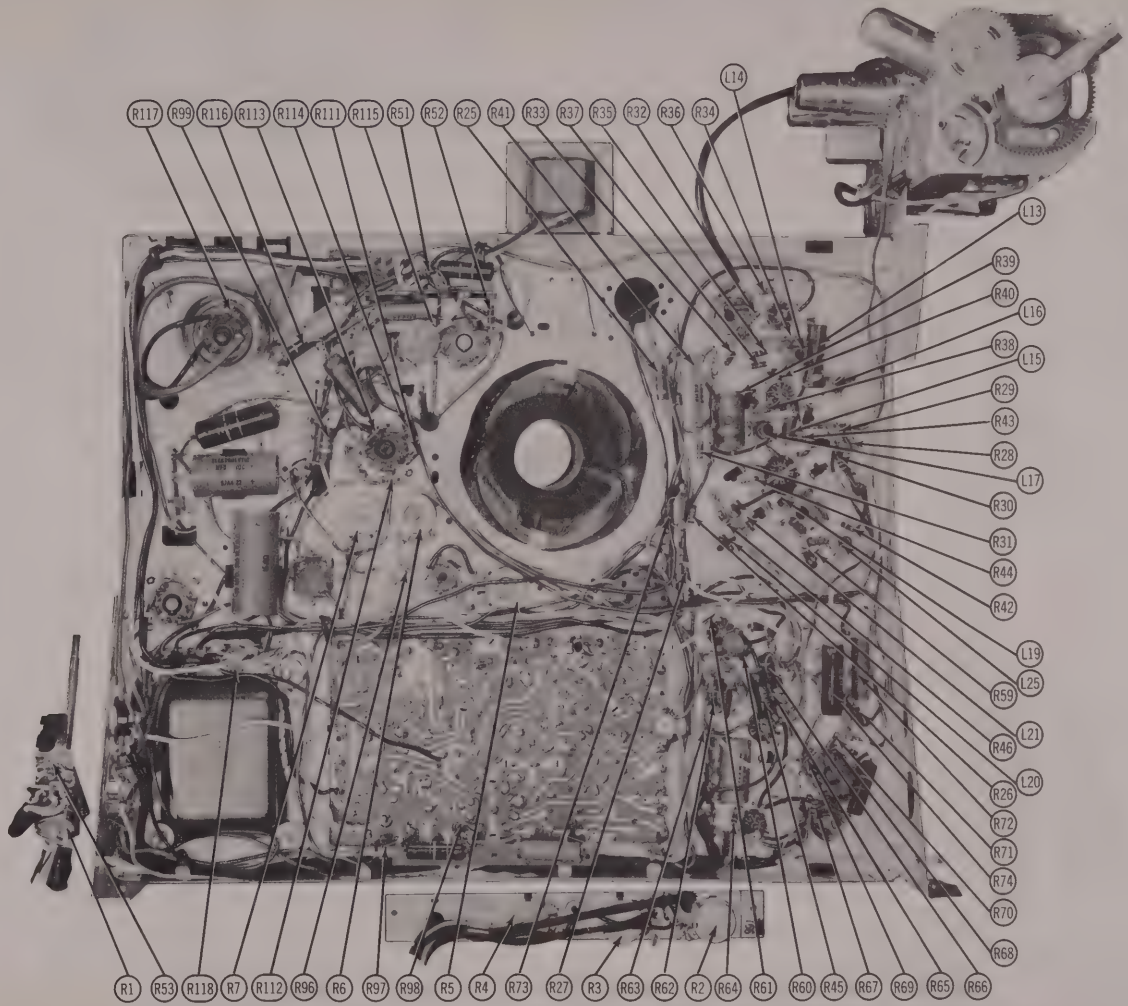

CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

TUBE PLACEMENT CHART

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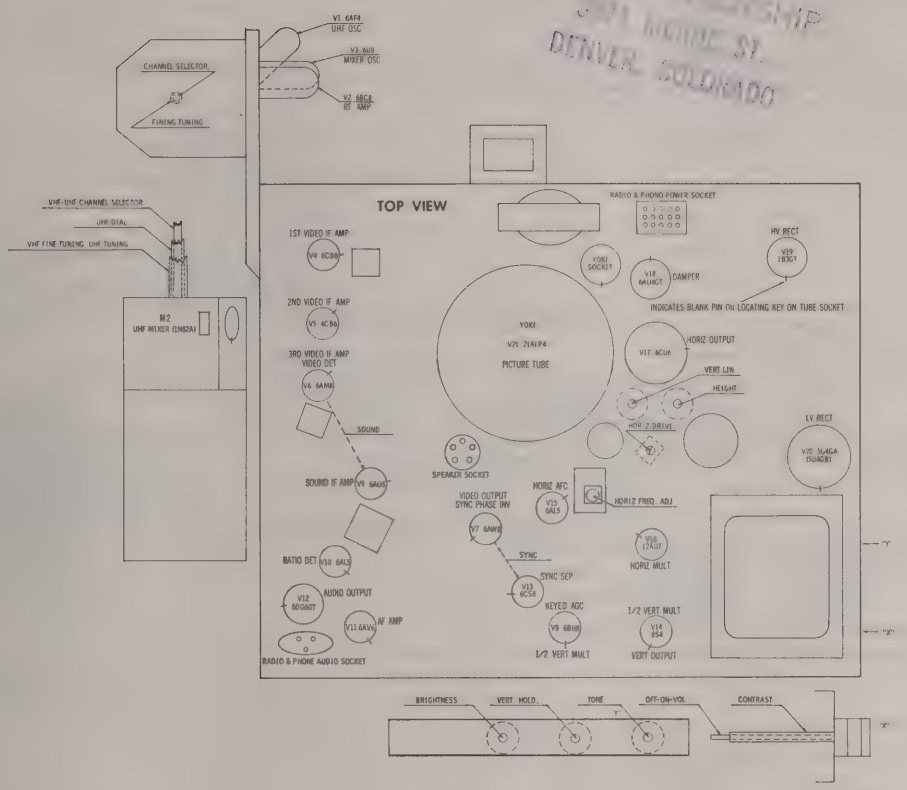


TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - **V20, Fuse (M1)**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V3, V4, V5, V6, V12 (V1 UHF only)**
No pic, no sound, has snow - **V2, V3, V4**
No pic, has sound, has raster - **V7, V8, V21**
Has pic, no sound - **V9, V10, V11, V12**
Overloaded picture - **V8**

SYNC FAILURE
No vert. sync - **V7, V8, V14**
No horiz. sync - **V7, V15, V16**
No vert. or horiz. sync - **V7, V13**

SWEEP FAILURE
No raster, has sound - **V16, V17, V18, V19, V21**
No vertical deflection - **V8, V14**
Poor vert. linearity or foldover - **V8, V14**
Poor horiz. linearity or foldover - **V16, V17, V18**
Narrow picture - **V16, V17, V18, V19, V20**
Vert. off freq. - **V7, V8, V14**
Horiz. off freq. - **V7, V15, V16**

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped away from the chassis. Do not remove the horizontal oscillator tube (V16) to disable the high voltage.
Allow 15 minute warm-up period for receiver and test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 4 volt bias supply to the ungrounded side of C31. Connect the positive lead to chassis. The bias may be reduced to 1.5 volts for step step 2.
Disconnect the antenna and connect a jumper wire across the antenna terminals.
Set the contrast control fully counter clockwise. Set the Noise Gate control fully clockwise.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to tube shield floating over converter tube (V3). Low side to chassis.	45.3MC (Unmod.)	Any non-interfering channel	DC probe thru decoupling network (Fig. 1). Common to chassis.	A1, A2	Adjust for maximum deflection.
2.	"	"	41.25MC	"	"	A3	Adjust for MINIMUM deflection.
3.	"	"	41.5MC	"	"	A4	Adjust for maximum deflection.
4.	"	"	42.5MC	"	"	A5	"
5.	"	"	43.5MC	"	"	A6, A7	Adjust for maximum deflection. Repeat steps 1, 5, 4 and 3 in that order. If A4 has to be rotated more than 1/4 turn, it will be necessary to repeat steps 1 and 3.

OVERALL VIDEO IF RESPONSE CHECK

Connect bias as under "Video IF Alignment".
Set contrast control fully counter clockwise.
If separate marker generator is used, loosely couple high side to the sweep generator lead. Connect the negative lead to chassis.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Direct	High side to floating tube shield over converter tube (V3).	44.5MC (7MC Swp.)	41.25MC 42.25MC 43MC 45MC 45.75MC	Any non-interfering channel	Vert. amp. thru decoupling filter (Fig. 1). Low side to chassis.		Check for response curve similar to Fig. 2. If necessary, retouch A1, A2, and A4 thru A7 to obtain desired response. Reduce depth of valley in peak by adjusting A7. A6 is adjusted to correct for excessive tilt.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Disconnect antenna and connect jumper across antenna terminals.
Set contrast control fully counter clockwise.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
7.	.01MFD	High side to point Ⓑ. Low side to chassis.	4.5MC (Unmod.)	Any	DC probe to point Ⓒ. Common to chassis.	A8, A9	Adjust for maximum deflection.
8.	"	"	"	"	DC probe to point Ⓓ. Common to chassis.	A10	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	.01MFD	High side to point Ⓑ. Low side to chassis.	4.5MC (450KC Swp.)	4.5MC	Any	Vert. amp. to point Ⓒ. Low side to chassis.	A8, A9	Disconnect stabilizing capacitor C2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 3.
8.	"	"	"	"	"	Vert amp. to point Ⓓ. Low side to chassis.	A10	Reconnect C2. Adjust to place 4.5MC at center of crossover lines. SLIGHTLY retouch A9 for maximum amplitude and straightness of crossover lines.

4.5MC TRAP ALIGNMENT

Connect a short clip lead across L20.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
9.	.01MFD	High side to point Ⓑ. Low side to chassis.	4.5MC (Unmod.)	Any	High side to point Ⓒ. Low side to chassis.	All	Adjust for MINIMUM deflection. Remove short from across L20.

OSCILLATOR ALIGNMENT

The channel oscillator adjustment screws are reached through a hole just to the left of the channel switch shaft.
The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.
Leave bias connected as under "Video IF Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp.)	211.25MC 215.75MC	13	Vert. amp. thru decoupling filter (Fig. 1). Low side to chassis.	A12	Adjust to place sound marker in trap notch as in Fig. 5. Video marker should be at 50%.
			207MC (10MC Swp.)	205.25MC 209.75MC	12			
			201MC (10MC Swp.)	199.25MC 203.75MC	11			
			195MC (10MC Swp.)	193.25MC 197.75MC	10			
			189MC (10MC Swp.)	187.25MC 191.75MC	9			
			183MC (10MC Swp.)	181.25MC 185.75MC	8			
			177MC (10MC Swp.)	175.25MC 179.75MC	7			
			85MC (10MC Swp.)	83.25MC 87.75MC	6			
			79MC (10MC Swp.)	77.25MC 81.75MC	5			
			69MC (10MC Swp.)	67.25MC 71.75MC	4			
			63MC (10MC Swp.)	61.25MC 65.75MC	3			
			57MC (10MC Swp.)	55.25MC 59.75MC	2			

ALIGNMENT INSTRUCTIONS (cont)

RF AND MIXER ALIGNMENT

Connect the negative lead of a 3 volt bias supply to the ungrounded side of C56. Connect the positive lead to chassis.
Connect a jumper from point (F) to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC (10MC Swp.)	193. 25MC 197. 75MC	10	Vert. amp. thru 10KΩ to point (E). Low side to chassis.	A24, A25 A26	Adjust for response curve similar to Fig. 6 with markers above 90%.
12	"	"	213MC (10MC Swp.)	211. 25MC 215. 75MC	13	"		Check each channel for response similar to Fig. 6. If markers fall below 70% on any channel, make compromise adjustment of A24, A25, and A26 with channel switch set to that channel. Recheck all other channels to see that they have not been seriously affected.
			207MC (10MC Swp.)	205. 25MC 209. 75MC	12			
			201MC (10MC Swp.)	199. 25MC 203. 75MC	11			
			185MC (10MC Swp.)	187. 25MC 191. 75MC	9			
			183MC (10MC Swp.)	181. 25MC 185. 75MC	8			
			177MC (10MC Swp.)	175. 25MC 179. 75MC	7			
			85MC (10MC Swp.)	83. 25MC 87. 75MC	6			
			79MC (10MC Swp.)	77. 25MC 81. 75MC	5			
			69MC (10MC Swp.)	67. 25MC 71. 75MC	4			
			63MC (10MC Swp.)	61. 25MC 65. 75MC	3			
			57MC (10MC Swp.)	55. 25MC 59. 75MC	2			

UHF TUNER ALIGNMENT

The UHF tuner portion of this receiver has been properly aligned at the factory and is very stable. Alignment of this section is not recommended in the field.

RADIO ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
13.	.1MFD	High side to antenna lug on tuning gang.	455KC	Radio	Tuning gang fully open	Across voice coil	A27, A28 A29, A30	Adjust for maximum deflection.
14.	"	"	1620KC	"	"	"	A31	"
15.	"	"	1400KC	"	Tune to 1400KC signal	"	A32	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

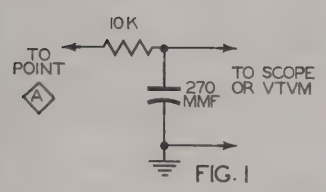


FIG. 1

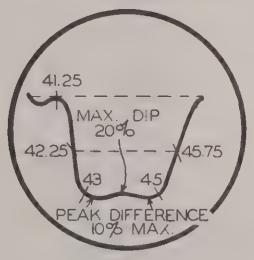


FIG. 2

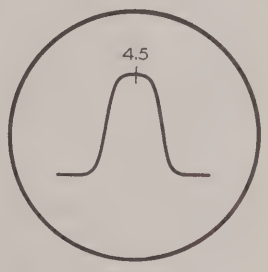


FIG. 3

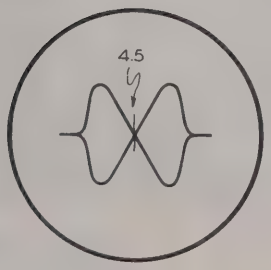


FIG. 4

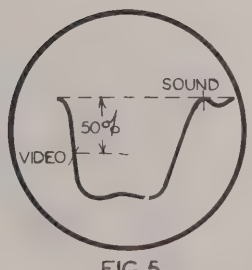


FIG. 5

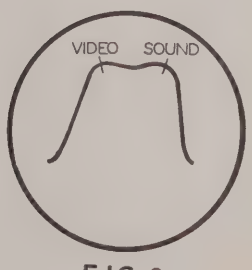
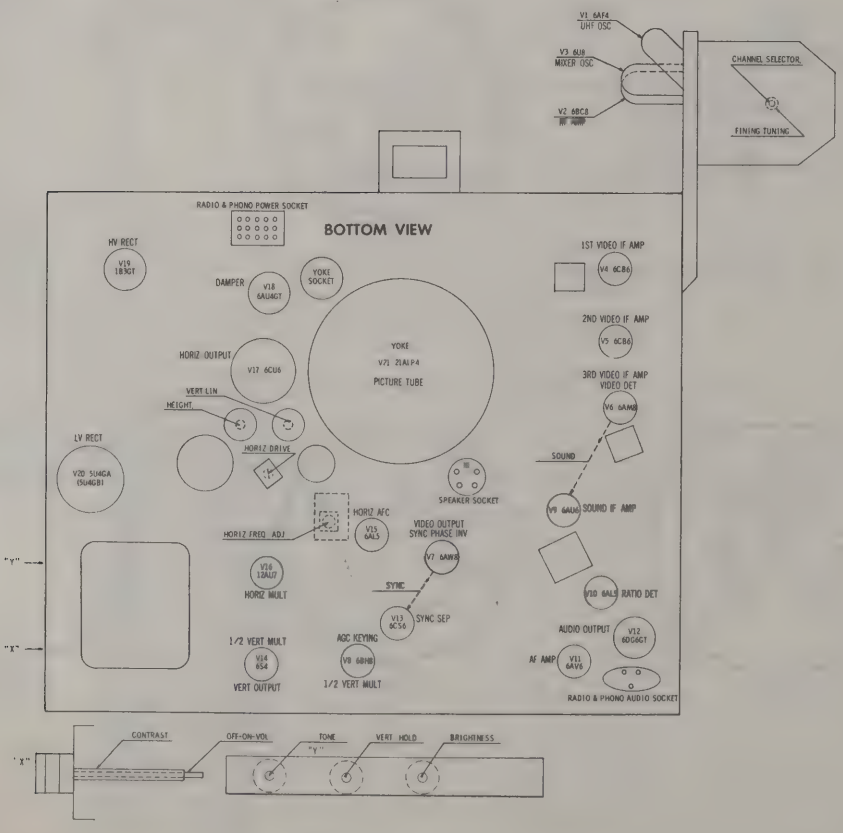


FIG. 6

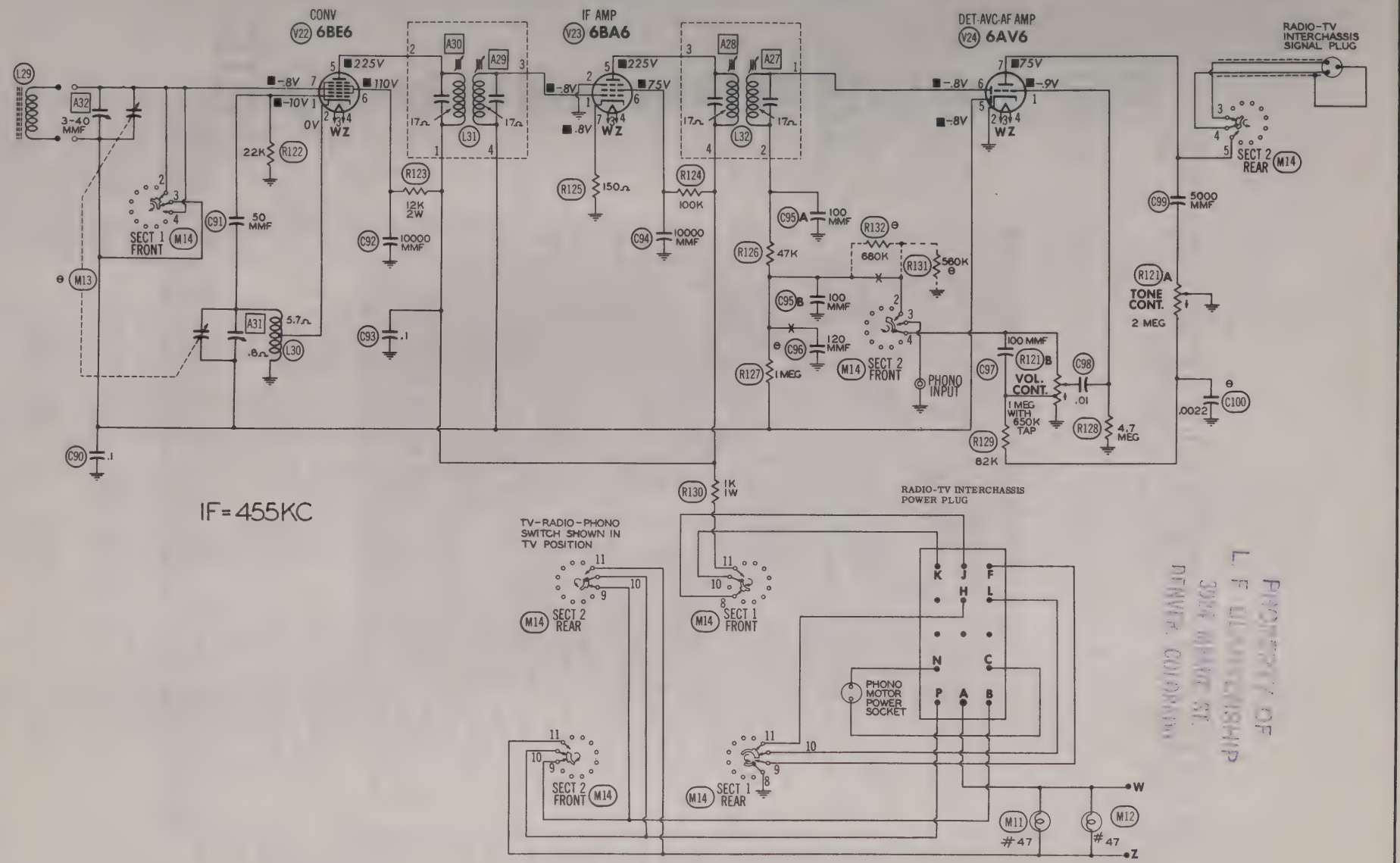
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AF4	*■ 4. 8KΩ	10KΩ	. 1Ω	0Ω	0Ω	10KΩ	*■ 4. 8KΩ		
V 2	6BC8	† 3KΩ	330KΩ	INF	0Ω	. 1Ω	INF	3. 5Meg	0Ω	0Ω
V 3	6U8	■ 3. 2KΩ	5Meg	† 100KΩ	. 1Ω	0Ω	† 10KΩ	0Ω	0Ω	10KΩ
V 4	6CB6	150KΩ	62Ω	0Ω	. 1Ω	† 5KΩ	† 5KΩ	0Ω		
V 5	6CB6	150KΩ	82Ω	. 1Ω	0Ω	† 5KΩ	† 5KΩ	0Ω		
V 6	6AM8	120Ω	. 1Ω	■ 6. 5KΩ	. 1Ω	0Ω	■ 1KΩ	. 2Ω	4. 7KΩ	
V 7	6AW8	3. 3KΩ	1. 5Meg	† 10KΩ	. 1Ω	0Ω	10Ω	4. 8KΩ	■ 8. 5KΩ	■ 5KΩ
V 8	6BH8	230KΩ	220KΩ	▲ 3Meg	. 1Ω	0Ω	■ 220Ω	■ 12KΩ	† 51Ω	2Meg
V 9	6AU6	470KΩ	0Ω	0Ω	. 1Ω	■ 1KΩ	■ 1KΩ	120Ω		
V 10	6AL5	INF	INF	0Ω	. 1Ω	10KΩ	0Ω	10KΩ		
V 11	6AV6	4. 7Meg	470Ω	0Ω	. 1Ω	0Ω	0Ω	† 470KΩ		
V 12	6DG6GT	TP	. 1Ω	† 500Ω	† 270Ω	800KΩ	TP	0Ω	10KΩ	
V 13	6CS6	50KΩ	0Ω	.1Ω	0Ω	■ 50KΩ	■ 22KΩ	1. 8Meg		
V 14	6S4	NC	1. 5KΩ	1. 5Meg	0Ω	. 1Ω	1. 5Meg	NC	NC	▲ 6. 5KΩ
V 15	6AL5	15Ω	15Ω	. 1Ω	0Ω	4. 8Meg	0Ω	4. 8Meg		
V 16	12AU7	† 5. 6KΩ	5Meg	1. 5KΩ	. 1Ω	. 1Ω	† 82KΩ	150KΩ	1. 5KΩ	0Ω
V 17	6CU6	TP	. 1Ω	TP	■ 3KΩ	470KΩ	TP	0Ω	0Ω	TOP CAP ▲ 14Ω
V 18	6AU4GT	NC	TP	400KΩ	NC	† 51Ω	TP	. 1Ω	0Ω	
V 19	1B3GT		PINS	1-8	HAVE	INF	RESISTANCE			TOP CAP ▲ 484Ω
V 20	5U4GA	NC	90KΩ	NC	20Ω	NC	19Ω	NC	90KΩ	
V 21	21ALP4A	0Ω	56KΩ	PIN 6 0Ω	PIN 10 ▲ 5. 6KΩ	PIN 11 ■ 200KΩ	PIN 12 . 1Ω			
V 22	6BE6	22KΩ	. 6Ω	0Ω	♦ . 1Ω	♦† 1. 6KΩ	♦† 14KΩ	♦ 1. 5Meg		
V 23	6BA6	♦ 1. 5Meg	0Ω	0Ω	♦ . 1Ω	♦† 1. 6KΩ	♦† 100KΩ	150Ω		
V 24	6AV6	4. 7Meg	0Ω	0Ω	♦ . 1Ω	♦ 1. 5Meg	♦ 650KΩ	♦† 470KΩ		

* MEASURED IN "UHF" POSITION.
■ MEASURED FROM 145V LINE.
† MEASURED FROM PIN 8 OF V20.
▲ MEASURED FROM PIN 3 OF V18,
♦ MEASURED IN "RADIO" POSITION.
TP-TIE POINT.
NC-NO CONNECTION.



TUBE PLACEMENT CHART



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L. F. GUNNISHIP
3944 ADAMS ST.
DENVER, COLORADO

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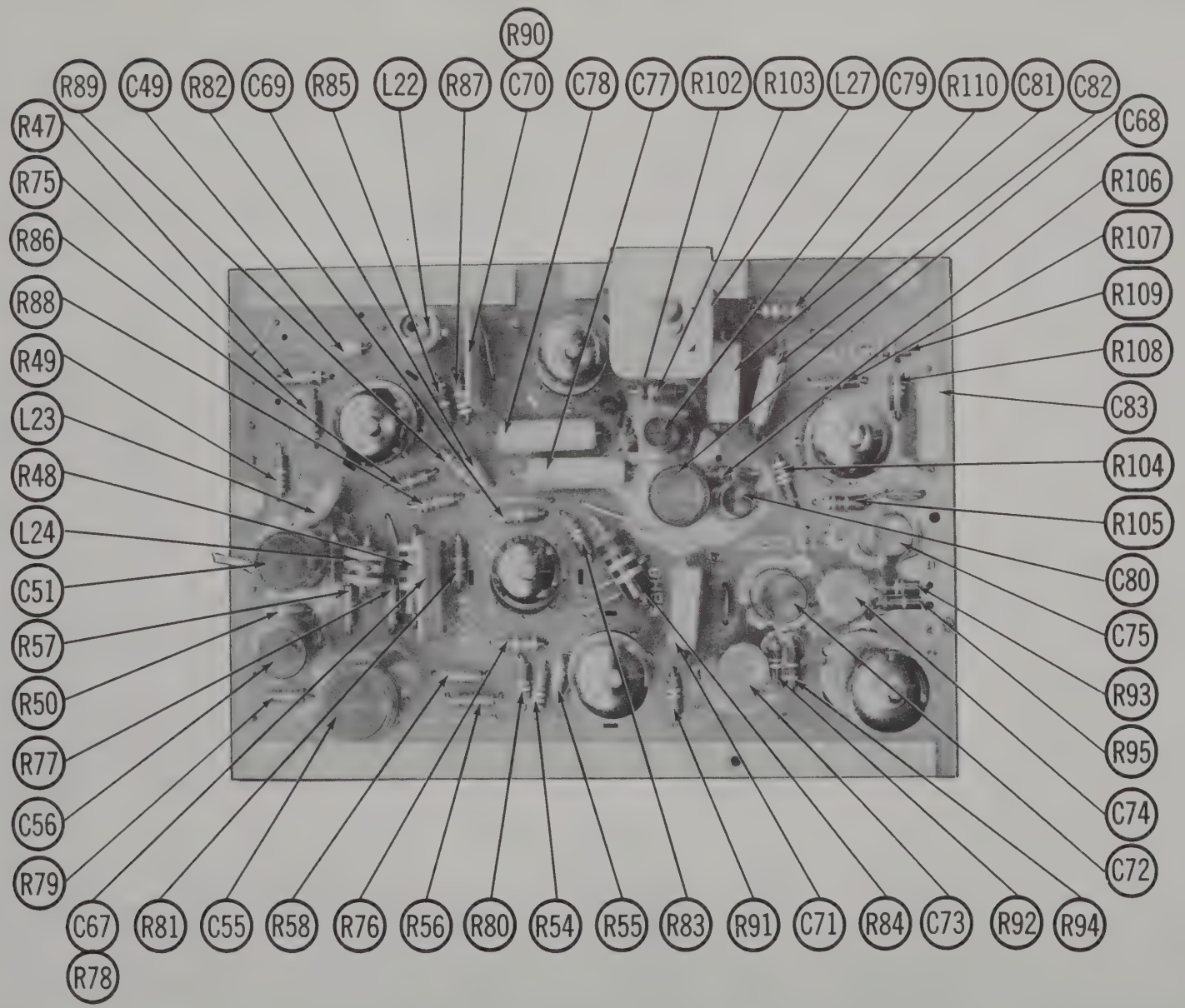
AM TUNER 3DIB AND 3DIC

RADIO SCHEMATIC

ADMIRAL CHASSIS 20SY4H, HF & Radio Chassis 3D1B, C



SYNC CIRCUIT SUB-CHASSIS

TV PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	UHF Oscillator	6AF4	
V2	VHF RF Amplifier	6BC8	
V3	VHF Mixer-Oscillator	6U8	
V4	1st. Video IF Amplifier	6CB6	
V5	2nd. Video IF Amplifier	6CB6	
V6	3rd. Video IF Amplifier-Video Detector	6AM8	
V7	Video Output-Sync Phase Inverter	6AW8	
V8	AGC Keying-Vert. Mult.	6BH8	
V9	Sound IF Amplifier	6AU6	
V10	Ratio Detector	6AL5	
V11	AF Amplifier	6AV6	
V12	Audio Output	6DG6GT	
V13	Sync Separator	6CS6	
V14	Vert. Mult.-Vert. Output	6S4	
V15	Horiz. AFC	6AL5	
V16	Horiz. Mult.	12AU7	
V17	Horiz. Output	6CU6	
V18	Damper	6AU4GT	
V19	HV Rectifier	1B3GT	
V20	LV Rectifier	5U4GA	Note 1

Note 1. 5U4GB may be used in some versions.

PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	ADMIRAL PART No.	CBS PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	
V21	21ALP4A ①	21ALP4A ① 21ALP4 21ALP4B ①	21ALP4A ① 21ALP4 21ALP4A/B	21ALP4A/B ②	① Aluminized ② Silver screen "85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	ADMIRAL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■60	350	67D15-105	E4C632		FP256	TM-3130	T-180	R2056
B	▲100	350				TC68	TD-60-350	MTD-4520	
C	▲20	200							
C2	4	50	67A4-9	SRE50V5	BR550	TC30	TD-4-50	MMT-0505	TVA-1303
C3	40	300	67A4-19	PRS350V40	BR4035	TC78	TD-40-350	FM-4540	TVA-1611
C4A	■60	200	67D15-109	AFH3-25		FP217.8	TM-3123	T-395	R1652 *
B	▲5	200				TC50X		MT-4504	
C	20	50							
C5	10	475	67A4-22	PRS500V10	BR1250	TC82	TD-10-475	MT-4710	TVA-1802

* Unit must be ordered from Mfgr.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C6	200		94E75-120							
C7	1000		94D64-121	EF-001	MFT-1000				503C-D1	
C8	3		94D64-86	NP0-D13		Z007	NP0A-030	ZT-553		
C9	1000		94D64-121	EF-001	MFT-1000				503C-D1	
C10	30		94E75-119							
C11	1500		94E75-118	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	
C12	1500		94E75-118	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	
C13	3-12									
C14	3		94D64-86	NP0-D13		Z007	NP0A-030	ZT-553		
C15	800		94C37-90							
C16	.5-3				829-3		3139-01-0R5	CT565A		
C17	47		94D64-88	BPD-000047	DD-470	G033	831-470	UC-5447	5GA-Q47	
C18	800		94C37-90							
C19	47		94E75-121							
C20	.5-3				829-3		3139-01-0R5	CT565A		
C21	10000		65D10-3	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C22	1000		94D64-121							
C23	10		94D64-91	N750-D110	TCN-10	N018	N750A-100	NT-541	5TCU-Q1	
C24	5		94D64-100							
C25	1500		94E75-118	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	
C26	800		94C37-90							
C27	1500		94E75-118	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	
C28	800		94C37-90							
C29	1500		94E75-118	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	
C30	62		65C6-114							
C31	.47	100	64B16-49	P288N-47		CUB2P47		PT4047	2TM-P47	Note 1
C32	800		65D10-29	BPD-0008	DD-801	K067	831-801	UC-5375	5GA-T8	
C33	12		65C6-49		TCZ-12	TZ10	NP0K-120			
C34	330		65B21-331	1469-00033		5R5T33			MS-333	
C35	800		65D10-29	BPD-0008	DD-801	K067	831-801	UC-5375	5GA-T8	
C36	800		65D10-29	BPD-0008	DD-801	K067	831-801	UC-5375	5GA-T8	
C37	1.8		65C6-101							
C38	18		65C6-91		TCZ-18	TZ12	NP0K-180			
C39	6.8		65C6-100	NP0-D16.8	TCZ-6R8	Z013	NP0A-6R8	ZT-5568	5TCCB-V68	
C40	800		65D10-29	DI-00075	DD-801	K067	831-801	UC-5375	5GA-T8	
C41	800		65D10-29	DI-00075	DD-801	K067	831-801	UC-5375	5GA-T8	
C42	800		65D10-29	DI-00075	DD-801	K067	831-801	UC-5375	5GA-T8	
C43	5000		65D10-5	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C44	5000		65C43-1	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C45	5000		65C43-1	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C46	800		65D10-29	BPD-0008	DD-801	K067	811-821		5GA-T8	Note 1
C47	800		65D10-29	BPD-0008	DD-801	K067	811-821		5GA-T8	Note 1
C48	6.8		65B28-068	NP0-S16.8	TCZ-6R8	TZ08	NP0A-6R8	ZT-5568	5TCCB-V68	
C49	6.8		65B28-068	NP0-S16.8	TCZ-6R8	TZ08	NP0A-6R8	ZT-5568	5TCCB-V68	
C50	800		65D10-29	BPD-0008	DD-801	K067	811-821		5GA-T8	
C51	.22	400	64B16-28					PTS4022	4SE-P22	
C52	.0068	600	64B9-14	BPD-0068	D6-682	CUB6D68	GP3-333-682	PT6268	6TM-D68	
C53	.01	600	64B8-13	BPD-01	D6-103	CUB6S1	GP3-333-103	PT611	6TM-S1	
C54	.001	1600	64A2-28	DAC-2	DD30-102	CUB16D1	1R5KV-102	PT1621	16TM-D1	
C55	.47	200	64B16-49						2SE-P47	
C56	.1	200	64B16-53					PTS401	2SE-P1	Note 2
C57	10		65C6-44	NP0-S110	TCZ-10	TZ09	NP0A-100	ZT-541	5TCC-Q1	
C58	20		65C6-51	NP0-S15	TCZ-20	TZ13	NP0K-200	ZT-542	5TCC-Q2	
C59	5000		65D10-5	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C60	180		65D10-52							
C61A	390		†63B6-15	SI390	DD-391	TP44	811-391	UC-5339	5GA-T39	
B	470			SI470	DD-471	TP46	811-471	UC-5347	5GA-T47	
C	5000			SI5000	DD-502	K080	811-005	DC-525	5HK-D5	

CAPACITORS (cont)

ITEM No.	RATING CAP.	VOLT	ADMIRAL Part No	AEROVOX Part No.	CENTRALAB Part No.	CORNELL-DUBILIER Part No.	ERIE Part No.	MALLORY Part No.	SPRAGUE Part No.	NOTES
				REPLACEMENT DATA						
C82	5000		65D10-5	BPD-005	DD-502	KD80	811-006	DC-525	5HK-D5	
C83	50		65C6-4	BI50	DD-500	TP30	GPUK-500	UC-545	5GA-Q5	
C84	5000		65D10-5	BPD-005	DD-502	KD80	811-006	DC-525	5HK-Q5	Notes 1, 4
C85	10000		64B8-13	BPD-01	DD-103	KD83	811-01	DC-531	5HK-61	
C86	.01	600	64B8-10	BPD-01	DD-103	CUM321	GPS-333-103	PT611	57M-61	Note 3
C87A	.150		663C9-3	4PA489	4PC-154	TP26	811-151	UC-5315	5GA-T15	
B	10000					KD83	811-01	DC-531	5HK-61	
C88	.33	300	64B16-51					PT84023		
C89	5000		65C43-1	BPD-005	DD-502	KD80	811-006	DC-525	5HK-D5	
C90	14000		663C9-1	4PC-304					5GK-T14	
C91	2200	600	66B31-223	1494-0047		1RSD22				
C92	.033	600	64B16-10							
C93	.047	600	64B16-33	BPD-05						
C94	.047	600	64B16-9							
C95	.033	300	64B16-36	BPD-03						
C96	.001	1000	64A2-10	DAC-3		DD30-102	CUB35D1	UK5KV-102	PT1521	15TM-D1
C97	.001	400	64B21-1	BPD-001		D5-102	CUM5D1	GP2L-102	PT521	5TM-D1
C98	.001	600	64B16-21	BPD-001		D6-102	CUM6D1	GP2L-102	PT621	6TM-D1
C99	.0047	400	64B16-38	BPD-0047		DD-472	K019	811-0047	PT84347	4SK-D47
C100	.015	300	64B16-35	BPD-015		DD15-153				3SK-S15
C81	3900	600	66B31-392	1464-0039			1RSD39			MH-339
C82	390	900	65B21-391			D4-391	SR5T39	811-391		MH-339
C83	680	500	65B21-681	1469-00068		D5-681	1RS7S8	811-681		MH-368
C84	.0047	600	64B8-15	BPD-0047		D6-472	CUB6D47	GP3-333-472	PT6347	6TM-D47
C85	.047	600	64B8-9	BPD-05		DF-503	CUB6D47		PT6347	6TM-D47
C86	.1	600	64A3-4	DF-104		DF-104	CUB6P1		PT7601	6TM-P1
C87	.047	1000	64A2-30				CUB6S47		PT7615	10TM-S47
C88	330	1000	65D40-59							
C89	150	3000	65D10-68	HVD-30-150		DD30-151	V3T15	3KV-151		30GA-T15

† Items C81A, C81B, C81C, R83A, R83B and R83C are combined in one unit.
* Items C87A, C87B and S7B are combined in one unit.
‡ Items C70, R90A and R90B are combined in one unit.
Note 1. Not used in some versions.
Note 2. Some versions may use .33MFD unit (part #64B16-51) in this application.
Note 3. Some versions may use .0047MFD unit (part #64B9-15) in this application.
Note 4. Some versions may use .0015MFD unit in this application.

CONTROLS

ITEM No	RATING RESISTANCE	WATTS	ADMIRAL Part No	CENTRALAB Part No.	CLAROSTAT Part No.	IRC Part No.	MALLORY Part No.	INSTALLATION NOTES
				REPLACEMENT DATA				
R1A	1000Ω	½	72B11-38	F1-5	R17V-552	* QJ-594	UR545	Contrast (Panel)
B	1Meg	½		R2-54		Not Req.	Not Req.	Volume (Rear)
C	Switch			KS-1		Not Req.	Not Req.	Attach to R1B.
R1A	1000Ω	½	72B11-31	F1-5	R17V-396	**QJ-597	UF13R	Contrast (Panel)-Note 1
B	1Meg	½		R2-54		Not Req.	UR54A)†	Volume (Rear)
C	Switch			KS-1		Not Req.	UR-36)	Attach to R1B.
R1A	1000Ω	½	72B11-39	F1-5			UF13R	Contrast (Panel)-Note 2
B	1Meg	½		R2-61			UK16-T1353	Volume tapped at 160K (Rear)
C	Switch			KS-1			UR-36	Attach to R1B.
D	Cover			KS-5				Attach to R1C.
R2A	1Meg	½	72C12-54	B-76	A47-1Meg-Z	Q13-139	U-35	Tone-Note 3
B	Shaft		Not Req.	Not Req.	KS8-3	Not Req.	Not Req.	Attach to R2A.
R3A	300Ω‡	½	72C12-63	B-66	A47-300K-S	Q11-139	U-43	Vert. Hold
B	Shaft		Not Req.	Not Req.	KS8-3	Not Req.	Not Req.	Attach to R3A.
R4A	100KΩ	½	72C12-62	B-60	A47-100K-S	Q11-139	U-41	Brightness
B	Shaft		Not Req.	Not Req.	KS8-3	Not Req.	Not Req.	Attach to R4A.
R5A	5Meg	½	72C20-38	AB-87	A47-5Meg-S	Q11-141	TA56L	Noise Gate
B	Shaft		Not Req.	AK-1	FKS-1	Not Req.	Not Req.	Attach to R5A.
R6A	3000Ω	½	72C30-7	AB-8	A47-3000-S	Q11-123	U-8	Vert. Linearity
B	Shaft		Not Req.	AK-1	FKS-1	Not Req.	Not Req.	Attach to R6A.
R7A	2.5Meg	½	72C30-8	BK-85	A47-2.5Meg-S	Q11-139	SU-565	Height
B	Shaft		Not Req.	Not Req.	FKS-1	Not Req.	Not Req.	Attach to R7A.

Note 1. Used in versions 20ST4H Rev 2 only.
Note 2. Used in versions 20ST4HF Rev 30 only.
Note 3. Not used in some versions.
* Concentrik Equivalent, K-7 Kit, Base Elements and Shafts; B17-108 & P17-300 (Panel)
B13-137 & R3-318 (Rear)
7S-1 (Switch)
** Concentrik Equivalent, K-2 Kit, Base Elements and Shafts; B17-108 & P1-126 (Panel)
B13-137 & R3-312 (Rear)
7S-1 (Switch)
† Universal Replacement (Mallory Exact Duplicate Part No. UK5T8).

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	WATT	ADMIRAL Part No.	IRC Part No.	NOTES
			REPLACEMENT DATA		
R8	10KΩ		60B6-103		
R9	1000Ω		60B1-102	BTS-1000	
R10	100Ω		60B6-101	BTS-100	
R11	100KΩ		60B6-104	BTS-100K	
R12	22KΩ		60B6-223	BTS-22K	
R13	47KΩ		60B6-473	BTS-47K	
R14	330KΩ‡		60B6-334	BTS-330K	
R15	470KΩ		60B6-474	BTS-470K	
R16	1500Ω	1	60B14-152	BTA-1500	
R17	10KΩ		60B6-103	BTS-10K	
R18	3300Ω	1	60B14-332	BTA-3300	
R19	27KΩ		60B6-273	BTS-27K	
R20	100KΩ‡		60B6-104	BTS-100K	
R21	100KΩ‡		60B6-104	BTS-100K	
R22	82000Ω		60B6-823	BTS-82000	
R23	100KΩ‡		60B6-104	BTS-100K	
R24	82000Ω		60B6-823		
R25	1500Ω	1	60B14-152	BTA-1500	
R26	470Ω		60B6-471	BTS-470	Note 2
R27	10KΩ		60B6-103	BTS-10K	
R28	22Meg			BTS-22Meg	Note 1
R29	560KΩ			BTS-560K	Note 1
R30	430KΩ 5%			BTS-430K 5%	Note 1
R31	4.7Meg		60B6-475	BTS-4.7Meg	
R32	345Ω 5%		60B7-345		
R33	1000Ω		60C38-102	BTS-1000	
R34	23KΩ 5%		60B7-233		
R35	100Ω		60C38-101	BTS-100	
R36	63Ω 5%		60B7-630	BTS-63 5%	
R37	100Ω		60B6-101	BTS-100	
R38	23KΩ 5%		60B7-233		
R39	100Ω		60C38-101	BTS-100	
R40	63Ω		60B38-31	BTS-63	
R41	4690Ω	†	62B30-1	PWT-4000	

ITEM No.	RATING OHMS	WATT	ADMIRAL Part No.	IRC Part No.	NOTES
			REPLACEMENT DATA		
R42	1000Ω		60C38-102	BTS-1000	
R43	4700Ω		60B8-472	BTS-4700	
R44	13KΩ		60C38-121	BTS-120	
R45	2000Ω	5	61A1-33	PW7-2000	
R46	4700Ω		60C38-472	BTS-4700	
R47	100Ω		60C38-101	BTS-100	
R48	4700Ω	3	60C38-472	BTS-4700	
R49	8200Ω		60C38-822	BTS-8200	
R50	180KΩ		60C38-184	BTS-180K	
R51	56KΩ		60B8-563	BTS-56K	
R52	270Ω		60B8-271	BTS-2700	
R53	470Ω		60B8-471	BTS-470	
R54	390KΩ		60C36-394	BTS-390K	
R55	680KΩ		60B8-684	BTS-680K	
R56	2.2Meg		60C38-225	BTS-2.2Meg	
R57	15Meg		60C38-156	BTS-15Meg	Note 3
R58	4.7Meg		60C38-475	BTS-4.7Meg	
R59	470KΩ		60B8-474	BTS-470K	
R60	100KΩ		60B8-104	BTS-100K	
R61	12Ω		60B8-121	BTS-120	
R62	390Ω		60B8-391	BTS-390	
R63A	10KΩ‡			BTS-10K	
B	10KΩ			BTS-10K	† 63B8-15
C	47KΩ			BTS-47K	
R64	4.7Meg		60B8-475	BTS-4.7Meg	
R65	470Ω		60B8-471	BTS-470	
R66	27KΩ	1	60B14-273	BTA-27K	
R67	470KΩ		60B8-474	SEW-470M	
R68	3Meg 5%		60B7-305	BTS-3Meg 5%	
R69	100Ω		60B8-101	BTS-100	
R70	1.5Meg 5%		60B7-155	BTS-1.5Meg 5%	
R71	3Meg 5%		60B7-305	BTS-3Meg 5%	
R72	220Ω	3	60B30-221	BTB-220	
R73	220Ω		60B8-221	BTS-220	

TV PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING OHMS	WATT	ADMIRAL Part No.	IRC Part No.	NOTES
			REPLACEMENT DATA		
R74	560Ω	15	61A1-32		
R75	47KΩ		60C38-473	BTS-47K	
R76	680Ω		60C38-683	BTS-680	
R77	15KΩ		60C38-153	BTS-15K	
R78	270KΩ		60C38-274	BTS-270K	
R79	150KΩ		60C38-154	BTS-150K	
R80	470KΩ		60C38-474	BTS-470K	
R81	1.8Meg		60C38-185	BTS-1.8Meg	
R82	120KΩ		60C38-124	BTS-120K	
R83	68KΩ		60C38-683	BTS-68K	
R84	22KΩ	2	60B20-223	BTB-22K	
R85	4.7Meg		60C38-475	BTS-4.7Meg	
R86	2.2Meg		60C38-225	BTS-2.2Meg	
R87	330Ω		60C38-332	BTS-3300	
R88	680Ω		60C38-683	BTS-6800	
R89	330Ω		60C38-333	BTS-3300	
R90A	38.4KΩ		‡ 63C9-1		
B					
R91	230KΩ		60C38-324	BTS-230K	
R92	15KΩ		60C38-153	BTS-15K	
R93	150KΩ		60C38-154	BTS-150K	Note 4
R94	2.7Meg		60C38-275	BTS-2.7Meg	Note 5
R95	1.5Meg		60C38-155	BTS-1.5Meg	Note 5
R96	820Ω		60B8-821	BTS-820	

Note 1. Not used in some versions.
Note 2. Some versions use a 15KΩ 2W resistor in this application (Part No. 60B30-153).
Note 3. Some versions use a 6.8Meg ½W resistor in this application (Part No. 60C36-625).
Note 4. Early versions use a 120KΩ ½W resistor in this application (Part No. 60C38-124).
Note 5. Early versions use a 2.2Meg ½W resistor in this application (Part No. 60C38-225).
Note 6. Early versions use a 4700Ω 2W resistor in this application (Part No. 60B20-472).
Also some other versions use two 15KΩ 2W resistors connected in parallel.
† Items R83A, R83B, R83C, C86A, C86B, C86C are combined in one unit.
* Items R7B, C67A, C87B are combined in one unit.
‡ Items R90A, R90B and C70 are combined in one unit.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	SEC. 1	SEC. 2	SEC. 3	ADMIRAL Part No.	Halldorson Part No.	Merit Part No.	Stancor Part No.	Thordarson Part No.	Tried Part No.	NOTES
					REPLACEMENT DATA						
T1	117VAC	575VCT	5V	6.3V	80C35-8	P9699 ①	P8836 ③			H-61BC ③	
	@ 1.54A	@ .230A	@ 3A	@ 3A							

① Type 540VCT, ② 730VCT and 370VCT windings. Tape 5V ③ 6A winding. Parallel and phase 6.3V windings.
④ Parallel and phase 6.3V windings.
⑤ Parallel and phase 6.3V ⑥ 6A windings. Tape 6.3V ⑦ 1.2A winding.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	ADMIRAL Part No	Halldorson Part No	Merit Part No	RCA TYPE No.	Ram Part No.	Stancor Part No.	Thordarson Part No.	Tried Part No.	NOTES
		REPLACEMENT DATA								
T2	Horiz. Output Trans.	78D85-2	P8830 *	P8830-54 *	A-2253 *	FLY-76 *	D-49 *			
T3	Vert. Output Trans.	72B43-4	21000 ②	A-2824 ②	V312	A-8141	26854	A-109X ③		
		72D43-4 ①	②	②						
T4A	Yoke(90°)Horiz. (18.5MHz)	84D67-10 ①	DP60T ③	MDF-53 ③	23SD1 ③	Y90T18493 ③	DY-16A ③	Y-16 ③	Y-41-1 ③	
	Vert.(87MH)	84D67-8 ①				③				

① Alternate Admiral part number.
② Use 15 to 1 turns ratio.
③ Connect as auto transformer.
④ Drill new mounting hole(s).
⑤ Cut and tape yellow lead.
⑥ Includes resistors R100, R101, and plug Admiral Part #88A18-3.
⑦ Use original horizontal damping network.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Tried Replacement Connections
5	5	5	5	5	5	5	5
6	3	4	4	4	4	7	7
7	See Note ⑤	2	2	2	2	1	1
8	1	1	1	1	1	2	2
Special Notes →	② ③	② ③	② ③	② ③	② ③	② ③	② ③

① Replace AGC coupling capacitor C64 with approximately 35 to 50MMF ② 4KV.
③ Requires 2 turns for filament winding.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	SEC.	ADMIRAL Part No.	Halldorson Part No.	Merit Part No.	Stancor Part No.	Thordarson Part No.	Tried Part No.	NOTES
			REPLACEMENT DATA						
T5	2.4KΩ	3-4Ω	Part of Speaker 78C107-1	Z1005 ①	A2907	A3049	23345 ①	S-1X ①	① Drill one new mtg. hole.

SPEAKER

ITEM No.	RATINGS SIZE	FIELD	V. C. IMP	ADMIRAL Part No.	QUAM Part No.	RCA TYPE No	NOTES
				REPLACEMENT DATA			
SP1	6"x 9"	PM	3-4Ω	78C107-1	69A2	228S	
SP2	6"x 9"	PM	3-4Ω	78C107-2	69A2	236S	

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	ADMIRAL Part No.	MEISSNER Part No.	MERIT Part No.	MILLER Part No.	NOTES
				REPLACEMENT DATA				
L1	UHF Ant.Coil	0Ω						
L3A	Fil. Choke	0Ω						
B	Fil. Choke	0Ω		84E75-116				
L3B	Cathode Choke	0Ω		84E75-117				
L4	UHF Osc.							
	Coupling Coil	0Ω						
L5	UHF Ip Coil	0Ω		84E75-114				
L6	UHF Ip Coil	0Ω		84E75-115				
L7	UHF Ip Coil	0Ω		84E75-51				
L8A	VHF Ant.Coil	0Ω	0Ω	84E75-82				Channel 2
B	VHF Ant.Coil	0Ω	0Ω	84E75-83				Channel 3
C	VHF Ant.Coil	0Ω	0Ω	84E75-84				Channel 4
D	VHF Ant.Coil	0Ω	0Ω	84E75-85				Channel 5
E	VHF Ant.Coil	0Ω	0Ω	84E75-86				Channel 6
F	VHF Ant.Coil	0Ω	0Ω	84E75-87				Channel 7
G	VHF Ant.Coil	0Ω	0Ω	84E75-88				Channel 8
H	VHF Ant.Coil	0Ω	0Ω	84E75-89				Channel 9
I	VHF Ant.Coil	0Ω	0Ω	84E75-90				Channel 10
J	VHF Ant.Coil	0Ω	0Ω	84E75-91				Channel 11
K	VHF Ant.Coil	0Ω	0Ω	84E75-92				Channel 12
L	VHF Ant.Coil	0Ω	0Ω	84E75-93				Channel 13
M	UHF IF Coil	0Ω	0Ω	84E75-51				
L9	Neut. Coil	0Ω		84D64-104				
L10A	VHF RF, Mixer Grid, Osc. Coils	0Ω		84E75-72				Channel 2
B	VHF RF, Mixer Grid, Osc. Coils	0Ω		84E75-73				Channel 3
C	VHF RF, Mixer Grid, Osc. Coils	0Ω		84E75-74				Channel 4
D	VHF RF, Mixer Grid, Osc. Coils	0Ω		84E75-75				Channel 5
E	VHF RF, Mixer Grid, Osc. Coils	0Ω		84E75-76				Channel 6
F	VHF RF, Mixer Grid, Osc. Coils	0Ω		84E75-77				Channel 7
G	VHF RF, Mixer Grid, Osc. Coils	0Ω		84E75-78				Channel 8
H	VHF RF, Mixer Grid, Osc. Coils	0Ω		84E75-79				Channel 9
I	VHF, RF, Mixer Grid, Osc. Coils	0Ω		84E75-80				Channel 10
J	VHF RF, Mixer Grid, Osc. Coils	0Ω		84E75-81				Channel 11
K	VHF RF, Mixer Grid, Osc. Coils	0Ω		84E75-82				Channel 12
L	VHF RF, Mixer Grid, Osc. Coils	0Ω		84E75-83				Channel 13
M	VHF IF Coil	0Ω		84E75-84				Includes 5.6KΩ resistor
L11	Conv. Plate	.1Ω		84D84-103				
L12	1st Video IF		.1Ω	72B153-2				
L13	Fil. Choke	0Ω		72A2-5	19-3001	TV-189	6179	.6 Microhenries
L14	2nd Video IF	.1Ω	.1Ω	72D111-36	19-4653	TV-189	6179	
L15	Fil. Choke	0Ω		72A3-5	19-3001	TV-189	6178	.6 Microhenries
L16	4.5MC Trap	0Ω		72D111-37	20-1045		6235	
L17	3rd Video IF	.1Ω	.1Ω	72D111-38	17-4653	TV-190	6310	
L18	4th Video IF	.3Ω	.3Ω	72B143-2	17-5004 ■	TV-191 ■	6354 ■	
L19	Series Peaking Coil	1.7Ω		72A34-1	19-1004		4630	6.4 Microhenries
L20	Series Peaking Coil	5.3Ω		72B5-33	19-3180 ▲	TV-194 ▲	6180 ▲	180 Microhenries; Wound on 4.7KΩ resistor-Note 1
L21	Shunt Peaking Coil	16Ω		72B5-30	19-3200		6174	600 Microhenries-Note 2
L22	4.5MC Trap	4.5Ω		72C132-1				
L23	Series Peaking Coil	8.5Ω		72B5-14	19-3260 †	TV-195 †	6181 †	254 Microhenries; Wound on 10KΩ resistor
L24	Shunt Peaking Coil	24Ω		72A11-1			6156 ▲	790 Microhenries; Wound on 10KΩ resistor
L25	Sound IF	4.8Ω		72C132-1				
L26	Ratio Det.	2.5Ω	.22CT	72C62-3	17-1033	TV-18	1498	Tertiary Winding, 9Ω

Note 1. Alternate Part No. 72B5-15.
Note 2. Alternate Part No. 72B5-7.
■ Use adaptor plate.
▲ Parallel with 6.7KΩ resistor.
† Parallel with 15KΩ resistor.
* Parallel with 10KΩ resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES. PRI.	DC RES. SEC.	ADMIRAL Part No.	MEISSNER Part No.	MERIT Part No.	MILLER Part No.	RCA TYPE No.	Ram Part No.	Thordarson Part No.	NOTES
			REPLACEMENT DATA							
L27	55Ω		84C17-4							

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	D.C. RESISTANCE	INDUCTANCE @ CURRENT 1000 (~)	ADMIRAL Part No.	Halldorson Part No.	Merit Part No.	RCA Part No.	Stancor Part No.	Thordarson Part No.	Tried Part No.
				REPLACEMENT DATA						
L28	.230A	51Ω	L 5H Y	74B18-14	C5040	C3994	C3527	28C41	C-31X	

FUSES

ITEM No.	TYPE	RATING	ADMIRAL Part No. FUSE	ADMIRAL Part No. HOLDER	LITTELFUSE Part No. FUSE	LITTELFUSE Part No. HOLDER	BUSS Part No. FUSE	BUSS Part No. HOLDER
			REPLACEMENT DATA					
M1 *	3AG 5/8	1A 250V	84A4-4 †	84A5-4	313.500 (3AG 5/8 DIA)	397001	MDL	4405

* Used in run 16 and higher.
† Alternate Part No. 84A1-33.

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3924 MEADE
DENVER, C

TV PARTS LIST AND DESCRIPTIONS (Continued)

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA		NOTES
		ADMIRAL PART No.	SYLVANIA PART No.	
M2	1N82A		1N82 or 1N82A	UHF Mixer (Clip in)

MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M3	Dial Light	81A1-12	#51
M4	Tuner	94E75-19	VHF-UHF Combination
M5	Trap	94D64-84	UHF Ant. Input Filter
M6	Printed Circuit Board	A4868-2	Sync
M7	Centering Device	* 94A71-1	* Alternate Part No. 94A88-1
M8	Ion Trap	94A15-4	
B1	Trimmer Cap.	66A30-3	Horiz. Drive (170-780MMF)
	Knob	33D165-65	On-Off-Volume (Maroon with Gold Trim) Models LS23B6, LS23B6N
	Knob	33D165-93	On-Off-Volume (Beige with Gold Trim)
		33D165-123	On-Off-Volume (Green with Gold Trim)
	Knob	33D165-67	VHF Channel Selector (Maroon with Gold Trim)
	Knob	33D165-95	VHF Channel Selector (Beige with Gold Trim)
	Knob	33D165-124	VHF Channel Selector (Green with Gold Trim)

RADIO PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V22	Converter	6BE6	
V23	IF Amplifier	6BA6	

ITEM No.	USE	TYPE	NOTES
V24	Det.-AVC-AF Amplifier	6AV6	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C90	.1	200	64B9-39	P288N-1	DF-104	CUB2P1		PT401	2TM-P1	
C91	50		65B21-470	N750-S147	TCN-50	N034	N750K-500	NT-5447	5TCU-Q47	
C92	10000		65C10-3	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C93	.1	400	64B9-26	P488N-1	DF-104	CUB4P1		PT401	4TM-P1	
C94	10000		65C10-3	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C95A	100		63A7-1	BPD-0001	DD-101	G042	GP1K-101	UC-541	5GA-T1	
B	100			BPD-0001	DD-101	G042	GP1K-101	UC-541	5GA-T1	
C96	120			S1120	D6-121	G044	GP2K-121	UC-5312	5GA-T12	Note 5
C97	100		65C6-3	NP0-D1100	TCN-100	N042	N750L-101	NT-531	5TCU-T1	
C98	.01	400	64B9-32	BPD-01	D6-103	CUB4S1	GP3-333-103	PT411	4TM-S1	
C99	5000		65C10-1	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C100	.0022	600	64B9-17	BPD-0022	D6-222	CUB6D22	GP2-333-222	PT6222	6TM-D22	Note 6

Note 5. Not used in some versions.
Note 6. Radio chassis 3D1C uses a .001MFD unit (part #65D10-82) in this application.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ADMIRAL PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R121A	2Meg	1/2	75B11-24	F1-67			UF26L	Tone (Panel)
B	1Meg	1/2		R2-56			UR16-T35	Volume tapped at 650K (Rear)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ADMIRAL PART No.	IRC PART No.	
R122	22KΩ		60B8-223	BTS-22K	
R123	12KΩ	2	60B20-123	BTB-12K	
R124	100KΩ 5%		60B8-104	BTS-100K	
R125	150Ω		60B8-151	BTS-150	
R126	47KΩ		60B8-473	BTS-47K	
R127	1Meg		60B8-105	BTS-1Meg	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ADMIRAL PART No.	IRC PART No.	
R128	4. 7Meg		60B8-475	BTS-4. 7Meg	
R129	82KΩ		60B8-823	BTS-82K	
R130	1000Ω	1	60B14-102	BTA-1000	
R131	560KΩ			BTS-560K	Note 7
R132	680KΩ			BTS-680K	Note 7

Note 7. Not used in some versions.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	ADMIRAL PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L29	Loop Stick	. 5Ω		69B207-1				
L30	Osc. Coil	6. 3Ω		69A52-11				Tapped @ . 6Ω
L31	Input IF	17Ω	17Ω	72C28-7	16-6758	BC-352	12-C1	
L32	Output IF	17Ω	17Ω	72C28-7	16-6758	BC-353		

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	ADMIRAL PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M9	409B20	55-T	GD-J	47	0-1 or S-1 and 0-3	

ASTATIC AND ELECTRO VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

RADIO PARTS LIST AND DESCRIPTIONS (Continued)

PHONO NEEDLE

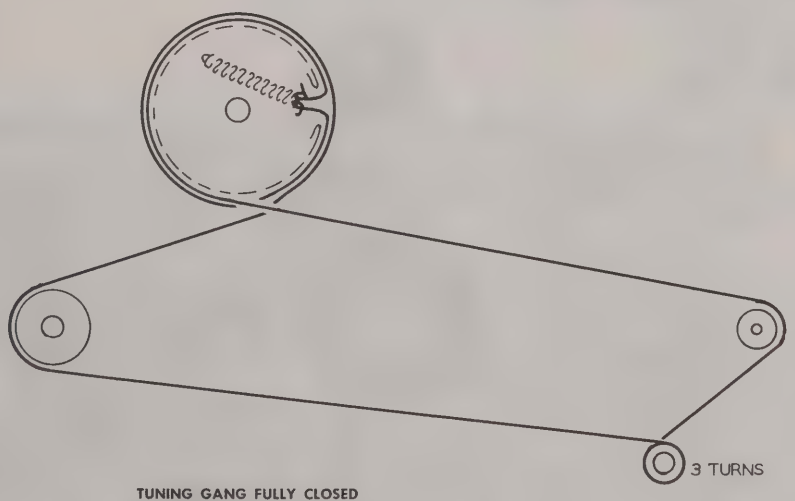
(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA				REMARKS
	ADMIRAL PART No.	JENSEN PART No.	PERMO PART No.	WALCO PART No.	
M10	98B15-43	* JP-36 or † JPS-36 or ♦†JPS-36SD or ♦ JPS-36D	* AC-185 or † AC-186 or ♦†AC-186D1 or ♦ AC-186D	* W-33TPA or † W-33TPS or ♦†W-33DS or ♦ W-33TPD	* Metal † Jewel ♦ Diamond

MISCELLANEOUS

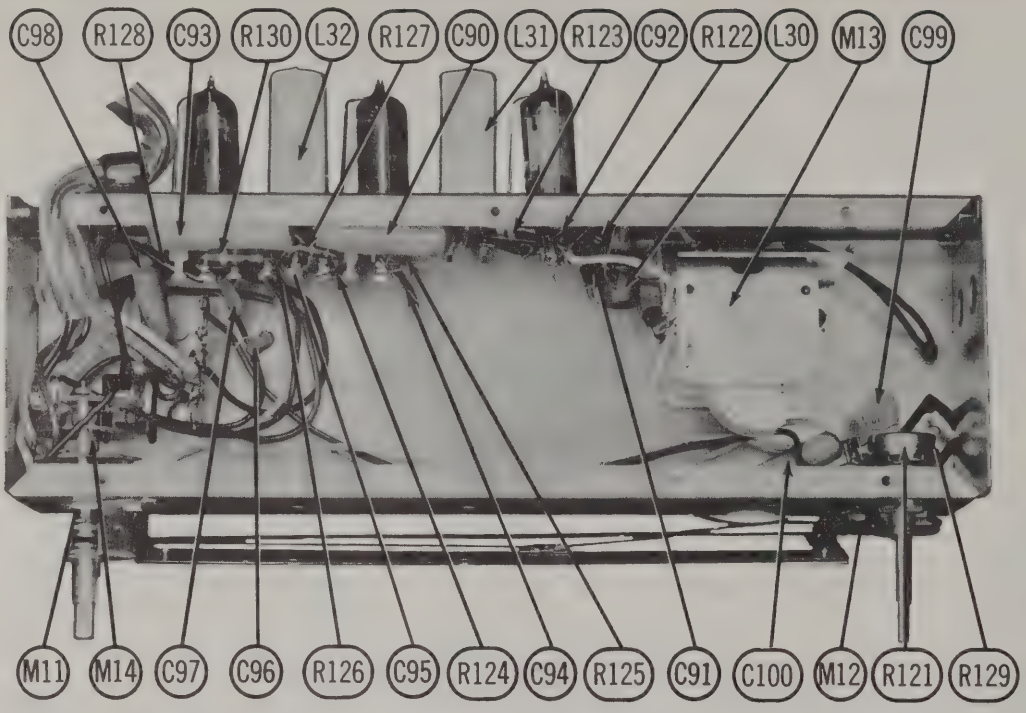
ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M11	Dial Light	81A1-8	#47
M12	Dial Light	81A1-8	#47
M13	Tuning Cap.	† 68B32	2 Gang (15-420MMF, 9-180MMF)
M14	Switch	77B49	TV-Radio-Phono (Rotary, Wafer Type)
A31	Trimmer Cap.	66B8-2	Ant. Trimmer (3-40MMF)

† Used in radio chassis 3D1B only; radio chassis 3D1C uses Part No. 68B65 in this application.

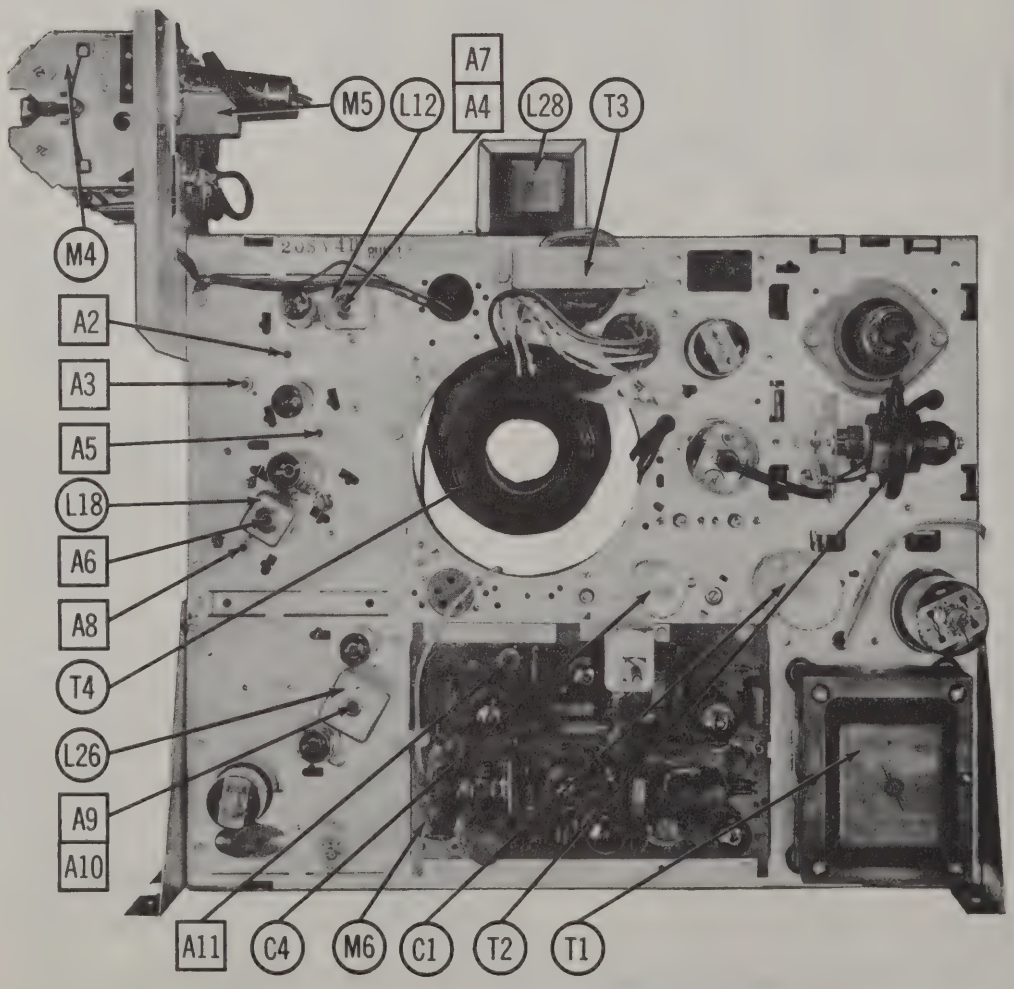


TUNING GANG FULLY CLOSED

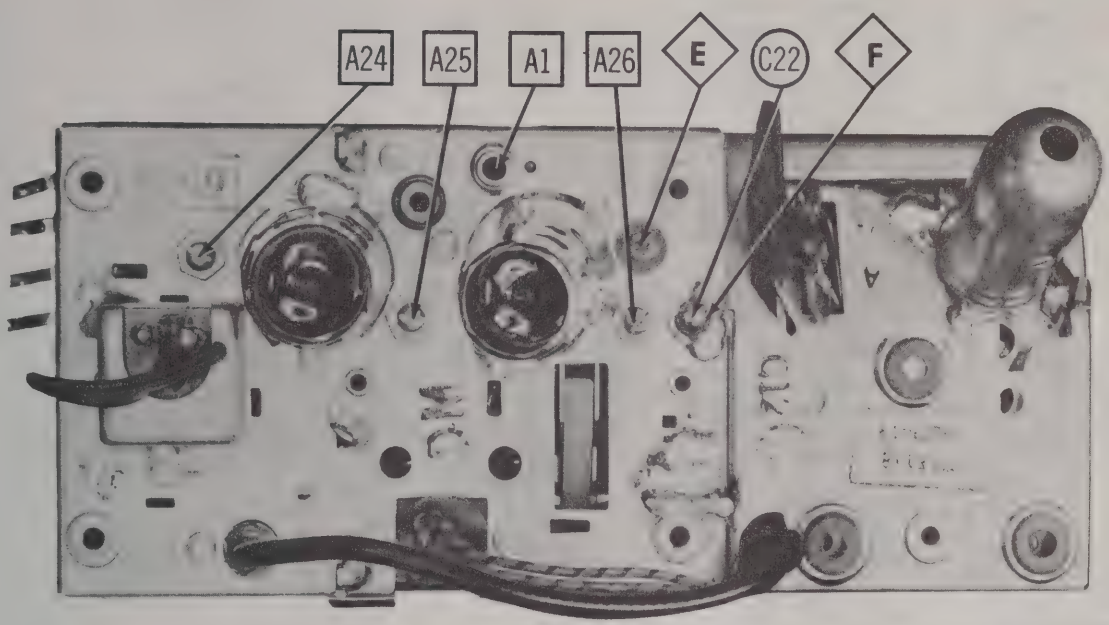
RADIO DRIVE CORD STRINGING



RADIO CHASSIS

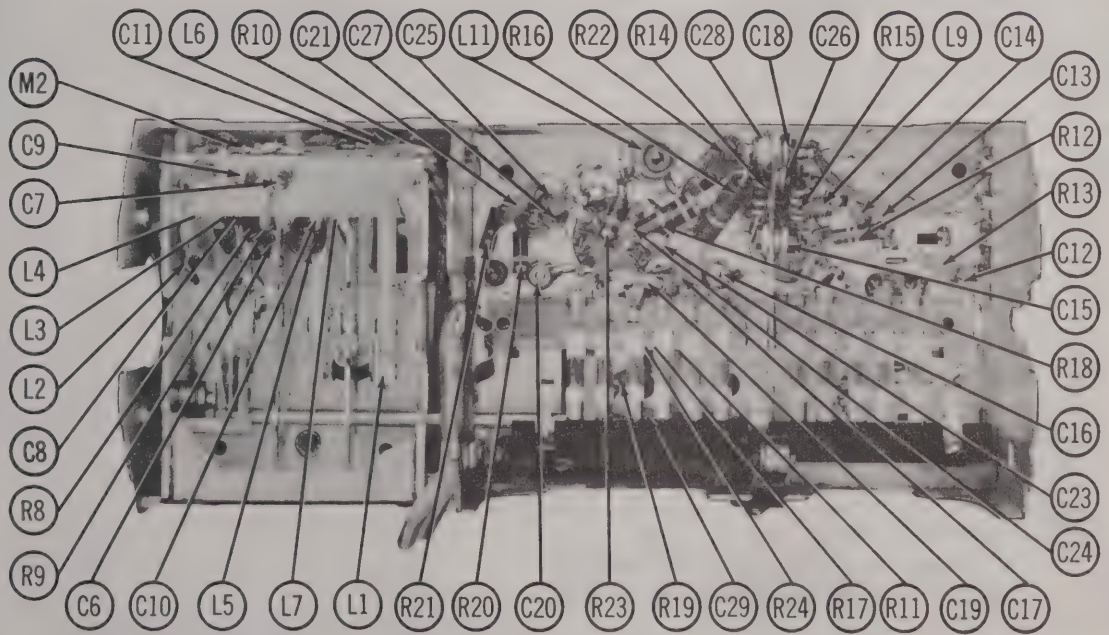


TV CHASSIS TOP VIEW

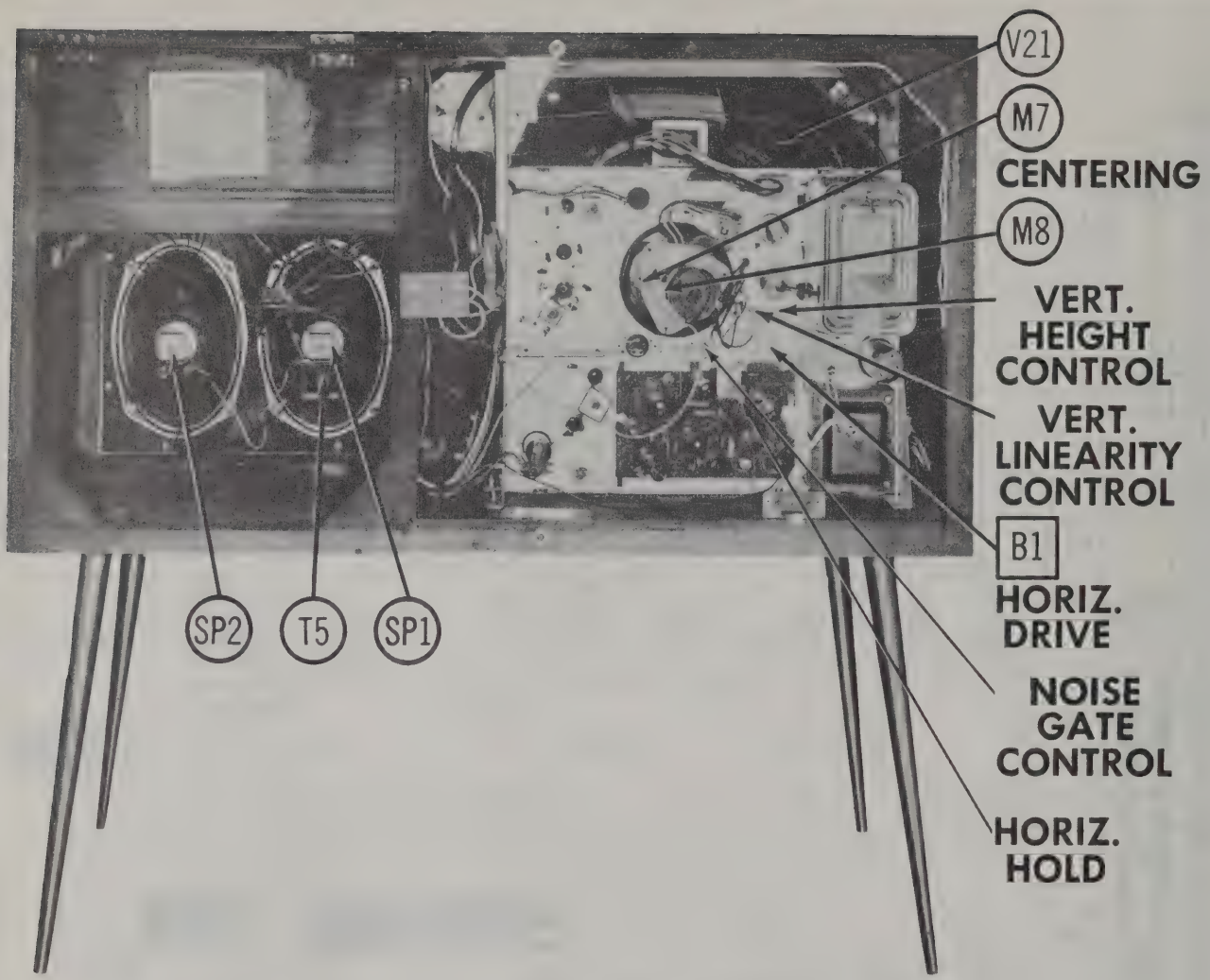


RF TUNER-TOP VIEW

PROPERTY OF
U. S. GOVERNMENT
DENVER, COLORADO



RF TUNER-BOTTOM VIEW



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

1. Turn the set on and tune in a TV station, preferably with a test pattern.

2. Set the brightness and contrast controls for normal picture.

3. Turn the horizontal hold clockwise until the picture loses sync. It may be necessary to switch off channel and back again for picture to lose sync.

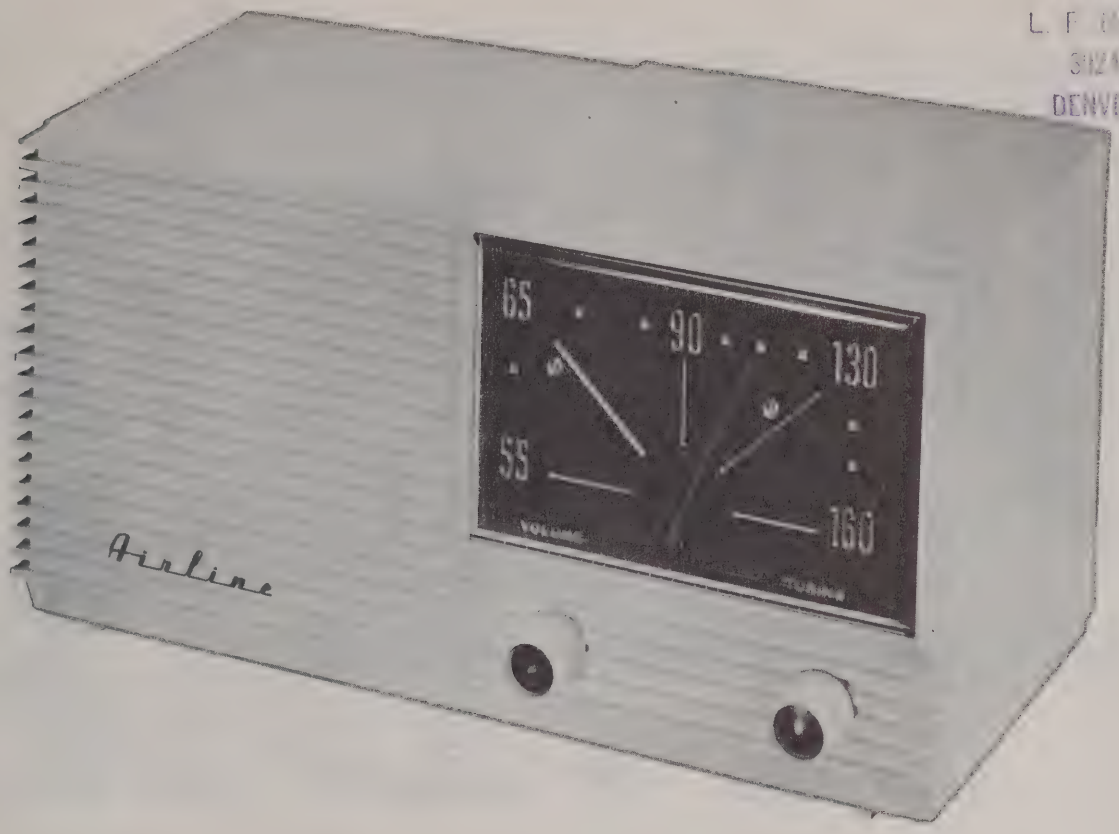
4. Turn the horizontal hold slowly counter clockwise until the picture just falls into sync.

5. Turn to an unused channel, If vertical lines appear near the center of the screen slowly adjust the horizontal drive trimmer (B1) until white lines disappear

6. If in step 5 the horizontal drive was adjusted, tune in a TV station and repeat steps 3 and 4. Check horizontal sync by switching off channel and back again.

PROPERTY OF
L. F. BROADCHSHIP
3124 MAPLE ST.
DENVER, COLORADO

AIRLINE MODELS
GSE-1625A, GSE-1626A



AIRLINE MODELS
GSE-1625A, GSE-1626A

TRADE NAME	Airline Models GSE-1625A, GSE-1626A
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave., Chicago, Ill.
TYPE SET	AC-DC Operated AM Superheterodyne Receiver
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12AV6 Det.-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-DC — RATING .23 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540KC-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.02MFD	High side to antenna stator lug. Low side to B-.	455KC (400~ Mod.)	Tuning Gang fully open	Across Voice Coil	A1, A2, A3	Adjust for maximum output.
2.		Loop	1620KC	"	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	Tune to 1400KC signal	"	A5	"

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1956 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

AIRLINE
MODELS GSE-1625A

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det. -AVC-AF Amp.	12AV6	

ITEM No.	USE	TYPE	NOTES
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	AIRLINE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	40	150	MW-25E76	PRS150V4040-20	BBRT44215	TCT3116	TDLT-4	FMT-1540	TVA-3451
B	40	150							
C	20	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	AIRLINE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	200		MW23E4000-29	SI-200	D6-201	TP38	GP2K-201	UC-532	5GA-T2	
C3	.047	200		BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C4	30		† MW23E2022-4						†100C5	
C5A	220									
B	5000									
C	5000		♦MW23E4000-29	♦ PA-113-2	♦ PC-151	♦ 116TM2	♦ 1408-02		♦ DT-2	
D	250									
E										
C6	10000		MW234004-17	BPD-01	DD-103	K082	811-01	DC511	5HK-S1	
C7	.047	400		BPD-05	DF-503	CUB4S47		PT4147	4TM-S47	
C8	.1	400		P688N-1	DF-104	CUB4P1		PT401	4TM-P1	

† Items C4 and R3 are combined in one unit.
♦ Items C5A, C5B, C5C, C5D, C5E, R6A, R6B, and R6C are combined in one unit. When replacing items separately, C5D and C5E should total 250MMF.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	AIRLINE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500KΩ	½	28E105-2	AB-60	A47-500K-Z	Q13-133	U-48	Volume-Note 1
B	Shaft		Not Req.	AK-4	KSS-3	Not Req.	Not Req.	Attach to R1A.
C	Switch		Not Req.	KB-1	SWE-12	76-1	US-26	Attach to R1A.

Note 1. Some versions may use an alternate control Part No. MW28E105-2.

RESISTORS

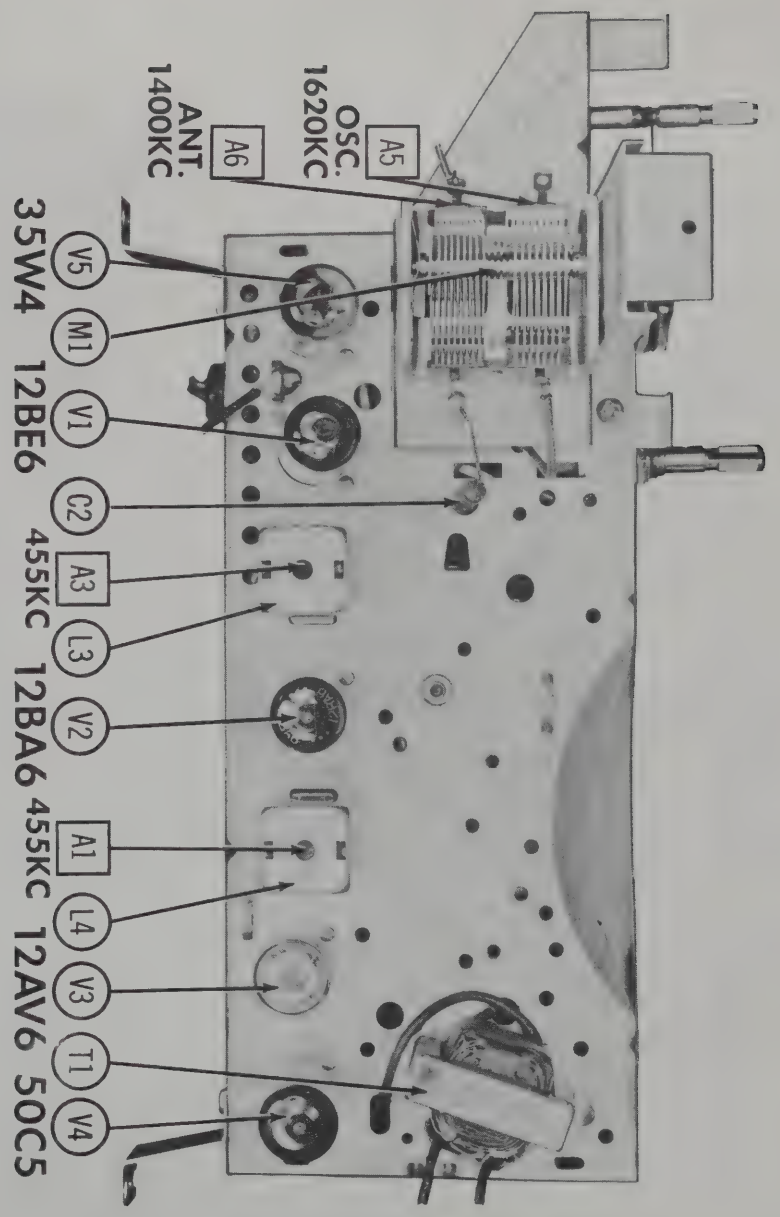
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	AIRLINE PART No.	IRC PART No.	
R2	1Meg			BTS-1Meg	
R3	22KΩ		†MW23E2202-4	BTS-22K	
R4	68Ω			BTS-68	
R5	3.3Meg			BTS-3.3Meg.	
R6A	6.8Meg			BTS-6.8Meg	
B	470KΩ		♦MW23E2041-6	BTS-470K	
C	470KΩ			BTS-470K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	AIRLINE PART No.	IRC PART No.	
R7	150Ω			BTS-150	
R8	220Ω	1		BTA-220	
R9	1200Ω	1		BTA-1200	

† Items R3 and C4 are combined in one unit.
♦ Items R6A, R6B, R6C, C5A, C5B, C5C, C5D, C5E are combined in one unit.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	AIRLINE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2.7KΩ	3-4Ω	MW22E88	Z1101	A-3025	A-3332	26S58	S-12X	

SPEAKER

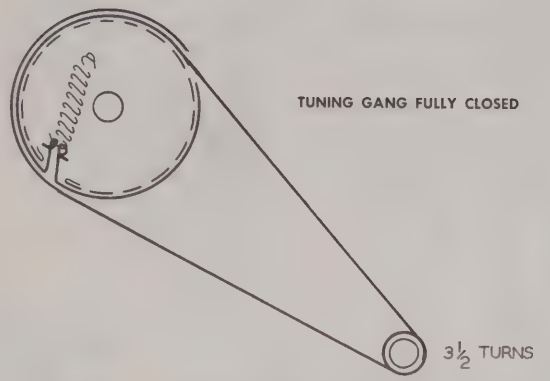
ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	AIRLINE PART No.	QUAM PART No.	RCA TYPE No.	
SP1	5"	PM	3-4Ω	MW1E72	5A07	205S2	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	AIRLINE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Stick	1Ω		MW64E37-▮				Tapped ⓐ .1Ω
L2	Osc. Coil	1.2Ω	1Ω	MW20E938	14-1074	BC-394	70-Osc.	
L3	Input IF	16Ω	16Ω	MW20E732	16-6758	BC-352	12-C1	
L4	Output IF	34Ω	16Ω	MW20E997				

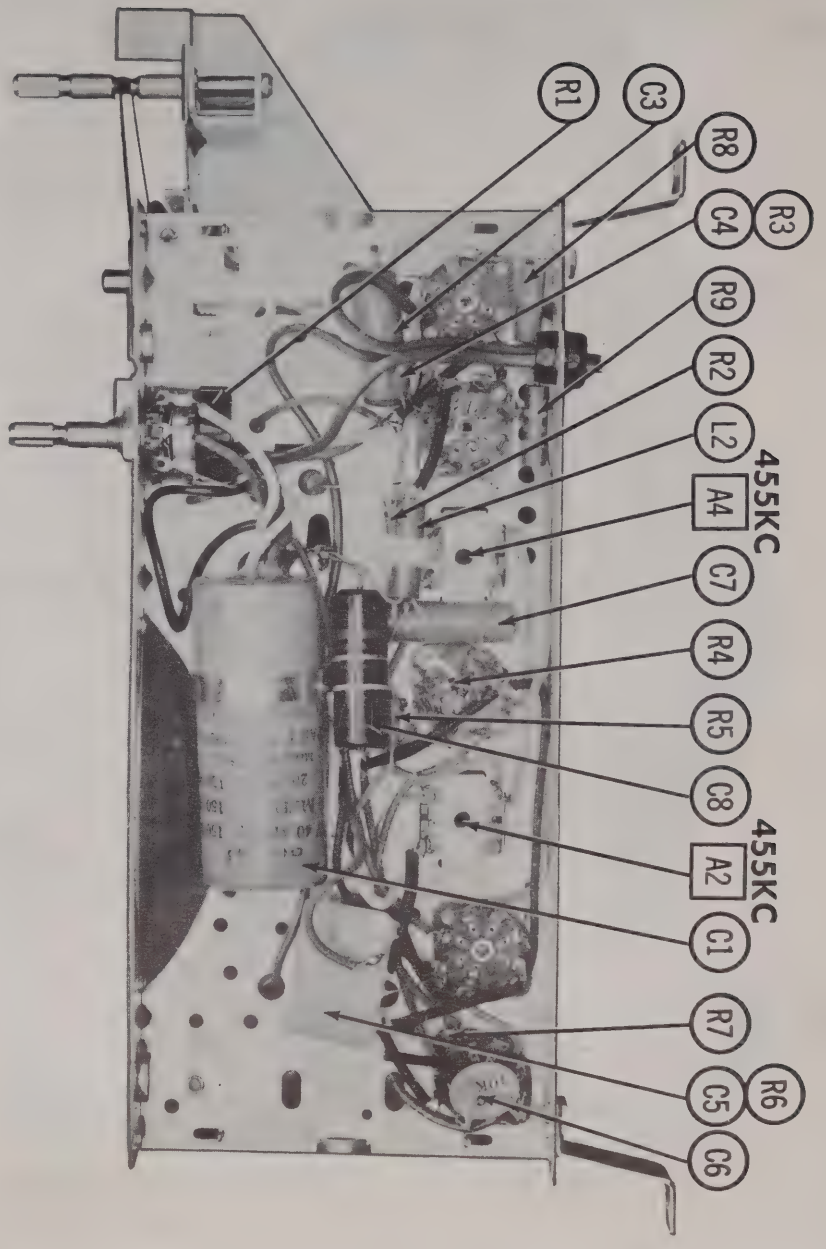
MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
M1	Tuning Cap.	MW24E74	2 Gang (13-265MMF, 13-105MMF)
	Cabinet	MW7E532	Green
	Cabinet	MW7E532-2	White
	Knob	MW37E115	Green, On-Off-Volume & Tuning
	Knob	MW37E115-2	White, On-Off-Volume & Tuning
	Crystal	MW5E95	Dial
	Pointer	MW35E40	

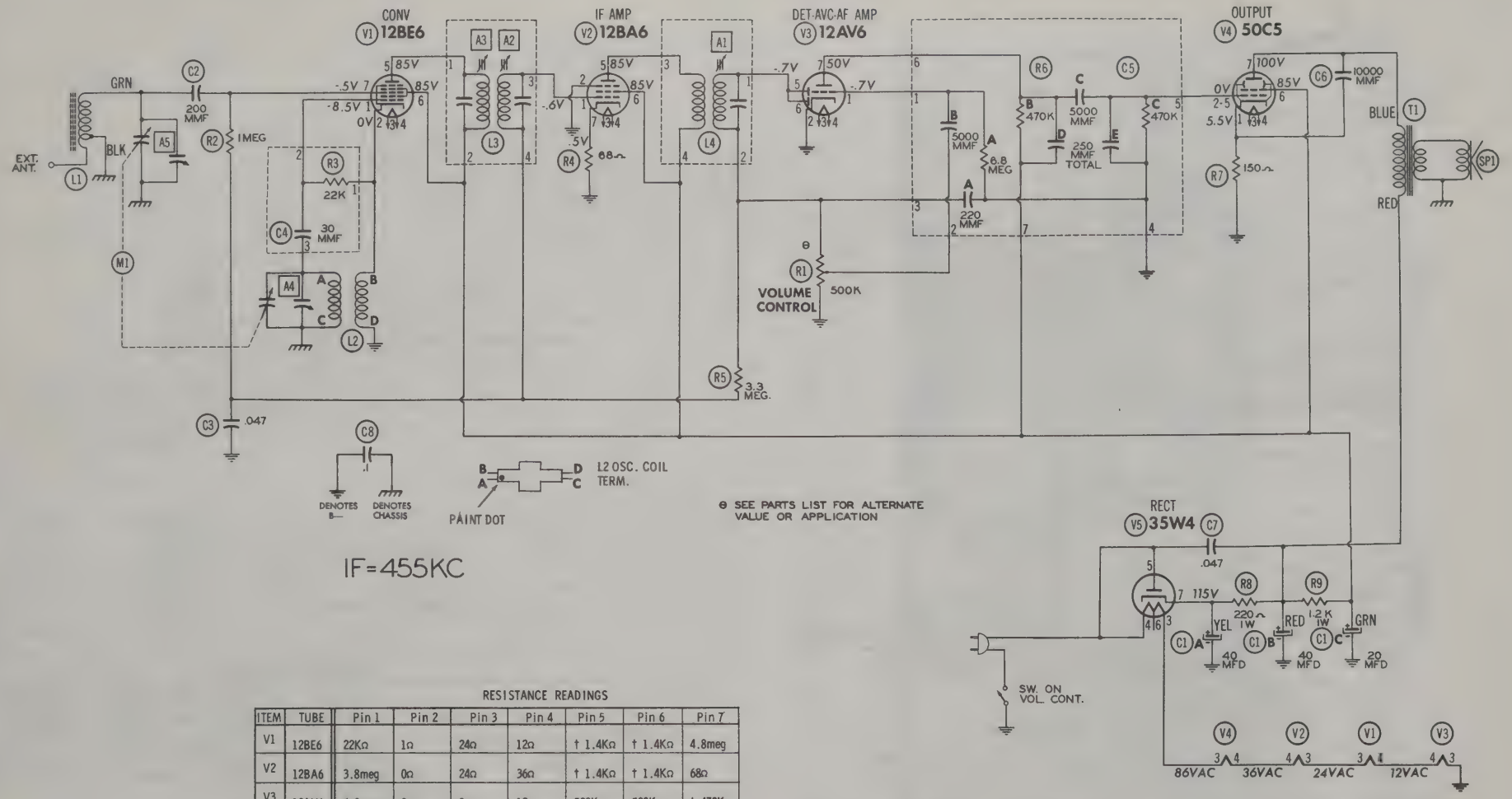


DIAL CORD STRINGING

CHASSIS—BOTTOM VIEW



AIRLINE MODEL GSE-1625A



IF=455KC

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22KΩ	1Ω	24Ω	12Ω	† 1.4KΩ	† 1.4KΩ	4.8meg
V2	12BA6	3.8meg	0Ω	24Ω	36Ω	† 1.4KΩ	† 1.4KΩ	68Ω
V3	12AV6	6.8meg	0Ω	0Ω	12Ω	500KΩ	500KΩ	† 470KΩ
V4	50C5	150Ω	470KΩ	85Ω	35Ω	470KΩ	† 1.4K	† 480Ω
V5	35W4	NC	TP	85Ω	120Ω	120Ω	NC	15KΩ

† MEASURED FROM PIN 7 OF V5.
NC NO CONNECTION.
TP TIE POINT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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AUTOMATIC
MODELS MP-69, MP-126

DENVER, COLORADO

AUTOMATIC
MODELS MP-69, MP-126

TRADE NAME	Automatic Models MP-69 (6 Volt), MP-126 (12 Volt)
MANUFACTURER	Automatic Radio Mfg. Co., Inc., 122 Brookline Ave., Boston 15, Mass.
TYPE SET	Battery Operated Universal Type AM Superheterodyne Automobile Receiver
TUBES (Six)	Types 6BA6 RF Amplifier, 6BE6 Converter, 6BA6 IF Amplifier, 6AV6 Det.-AVC-AF Amplifier, 6AQ5 Output, 6X4 Rectifier (Model MP-126 uses 12 Volt Equivalent Type Tubes)
POWER SUPPLY	6 Volt Storage Battery (12 Volt for Model MP-126) RATING 5.4 Amp. @ 6.3 Volts DC (or) 3 Amp. @12.6 Volts DC (Model MP-126)
TUNING RANGE—BROADCAST	538KC-1610KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 6BE6 (V2). Low side to chassis.	265KC (400%Mod)	1610KC	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	"	"	1610KC	"	"	A5	"
3.	68MMF	Antenna lead	1400KC	Tune to 1400KC signal	"	A6, A7	"

With receiver installed in car and antenna fully extended, tune in a weak station near 1400KC and adjust A7 for maximum volume.

PUSHBUTTON ADJUSTMENT

Pull button straight out . Select desired station manually. Press push button in firmly. Repeat on remaining push buttons.

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1956 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

AUTOMATIC
MODEL MP-69

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	6BA6	Note 1
V2	Converter	6BE6	Note 1
V3	IF Amplifier	6BA6	Note 1
V4	Det.-AVC-AF Amplifier	6AV6	Note 1
V5	Output	6AQ5	Note 1
V6	Rectifier	6X4	Note 1

Note 1. Equivalent 12 volt tubes used in Model MP-126.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA AUTOMATIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■20	350	CE-69			FP329.5		D-320	
B	▲20	350						MT-4520	
C	20	25							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA AUTOMATIC PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	100			NPO-D1100	TCZ-100	TZ30	NPO-337-101	ZT-531	5TCC-T1	
C3	5000		DCC502JL	1464-005		1DR5D5			MS-25	
C4	.047	200	C503-2	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C5	.047	200	C503-2	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C6	5		DCC5	NPO-D15	DD-050	Z011	831-050	ZT-555	5GA-V5	
C7	40		DCC400P	NPO-SI39	TCZ-39	Z031	NP0L-390		5TCC-Q39	
C8	51		DCC510N	NPO-SI50	TCZ-51	Z051	NP0-338-510	ZT-545	5TCC-Q5	
C9A	220									
B	5000									
C	5000		†PC-151	†PA-113-2	†PC-151	†116TM2	†1408-02		†DT-2	
D	250									
E										
C10	3000		DCC302M	BPD-003	DD-302		811-003	UC-523	5GA-D3	
C11	15000		DCC153	BPD-015	DD16-153		821-015		5HK-S15	
C12	.01	600	C103-6	BPD-01	D6-103		GP3-333-103	PT611	6TM-S1	
C13	.01	1600	C103-12	P1688N-01	DD16-103	CUB16S1		PT1611	MB-S1	Note 1
C14	.25	100	C254-1	P288N-25		CUB2P25		AG444	2TM-P25	Note 2
C15	.5	100	C504-1	P185N-5		CUB2P5		RF480	2TM-P5	
C16	.5	100	C504-1	P185N-5		CUB2P5		RF480	2TM-P5	

Note 1. Model MP129 uses a .006MFD unit (part #C602-16) in this application.
Note 2. Not used in some versions.
† Items C9A, C9B, C9C, C9D, C9E, R9A, R9B and R9C are combined in one unit.
When replacing items separately, C9D and C9E should total 250MMF.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA AUTOMATIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2Meg	½	RV-69	F1-68	RTV-553C	*QJ-892A	UF26A	Tone (Panel)
B	500KΩ	½		R2-45			UR55-T254	Volume (Rear) Tapped @180KΩ
C	Bushing			AK-26	XB-2		EB-158	Attach to R1A
D	Switch			KB-4			US-26	Attach to R1B

* Concentrikit Equivalent: K-8 Kit, Base Elements & Shafts: B13-139 & P14-125 (Panel)
B13-133X & R1-205 (Rear)
76-1 (Switch)

RESISTORS

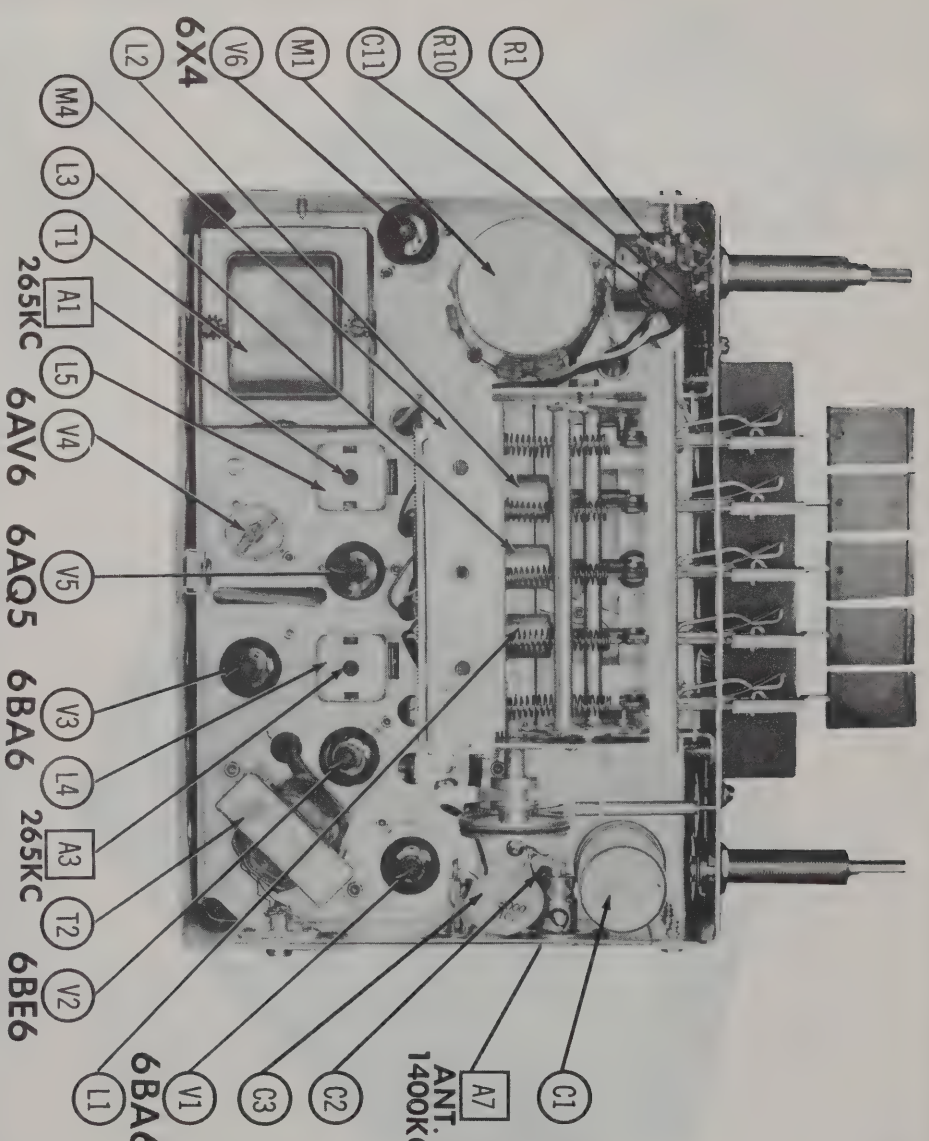
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA AUTOMATIC PART No.	IRC PART No.	NOTES
R2	470KΩ		R474	BTS-470K	
R3	150Ω		R151	BTS-150	
R4	150KΩ		R154	BTS-150K	
R5	47KΩ		R473	BTS-47K	
R6	1500Ω		R152	BTS-1500	
R7	6800Ω	2	R682-2	BTB-6800	
R8	2.2Meg			BTS-2.2Meg	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA AUTOMATIC PART No.	IRC PART No.	NOTES
R9A	6.8Meg			BTS-6.8Meg	
B	470KΩ		†PC-151	BTS-470K	
C	470KΩ			BTS-470K	
R10	22KΩ			BTS-22K	
R11	330Ω		R331	BTS-330	
R12	1000Ω	1	R102-1	BTA-1000	
R13	10KΩ		R103	BTS-10K	Note 1
R14	68Ω			BTS-68	Note 2
R15	68Ω			BTS-68	Note 2

† Items R9A, R9B, R9C, C9A, C9B, C9C, C9D, C9E are combined on unit.
Note 1. Used only in 12V Model MP-126.
Note 2. Some 6 volt versions use 82Ω resistor in this application.
12 Volt models use 220Ω, 1 watt resistor in this application. (part #R221-1).

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	AUTOMATIC PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	6VCT @2.75A	440VCT @.042A			TV-600-6 ①					
T1	12VDC @1.8A	400VCT @.042A			TV-600-12 ②					

① Used in Model MP-69.
② Used in Model MP-126.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	AUTOMATIC PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5.2KΩ	3-4Ω	TO-4502-A	Z1003	A-2930	A-3850	24S51	S-5X ①	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	AUTOMATIC PART No.	QUAM PART No.	RCA TYPE No.	
SP1	6"x 9"	PM	3-4Ω	PM901	69A2	238S1	Used in Model MP-69
SP1	6"x 9"	PM	3-4Ω	PM902	69A2	238S1	Used in Model MP-126

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	AUTOMATIC PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil	14Ω						Note 1
L2	RF Coil	14Ω						Note 1
L3	Osc. Coil	.6Ω	7.5Ω					Note 1
L4	Input IF	37Ω	37Ω	AR262	16-6752	BC-350	12-H1	
L5	Output IF	37Ω	37Ω	AR262	16-6754	BC-351	12-H2	
L6	Fil. Choke	0Ω		L203				
L7	Vibrator Hash Choke	0Ω		L202				

Note 1. Part of M4 complete assembly part #PT-69.

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				AUTOMATIC PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	6V	115∿	V83	5301	859	5301	Used in Model MP-69
M1	Interrupter	12V	115∿	V55	6330	G883		Used in Model MP-126

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			AUTOMATIC PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	SFE	14A	A200		307014. (SFE14A)	155014	SFE14	HRI
M2	SFE	7½A	A100 *		20307.5 (7AG 7½A)	155009	SFE 7½	HRH

* Used in Model MP-126.

MISCELLANEOUS

ITEM No.	PART NAME	AUTOMATIC PART No.	NOTES
M3	Dial Light	T-47	#47 - Model MP-69
M3	Dial Light	W-1815	#1815 - Model MP-126
M4	Tuner	PT-69	Permeability (Push-button), includes L1, L2, L3
M5	Spark Plate	X215	
A5	Trimmer Cap.	CT-281	Osc. trimmer
A6	Trimmer Cap.	CT-400	RF Trimmer
A7	Trimmer Cap.	CT-800	Ant. Trimmer
	Knob	H710	On-off-volume
	Knob	H908A	Tuning
	Knob	H910	Tone
	Dial Scale	D-69	
	Dial Pointer	PS-315	

CHASSIS—BOTTOM VIEW

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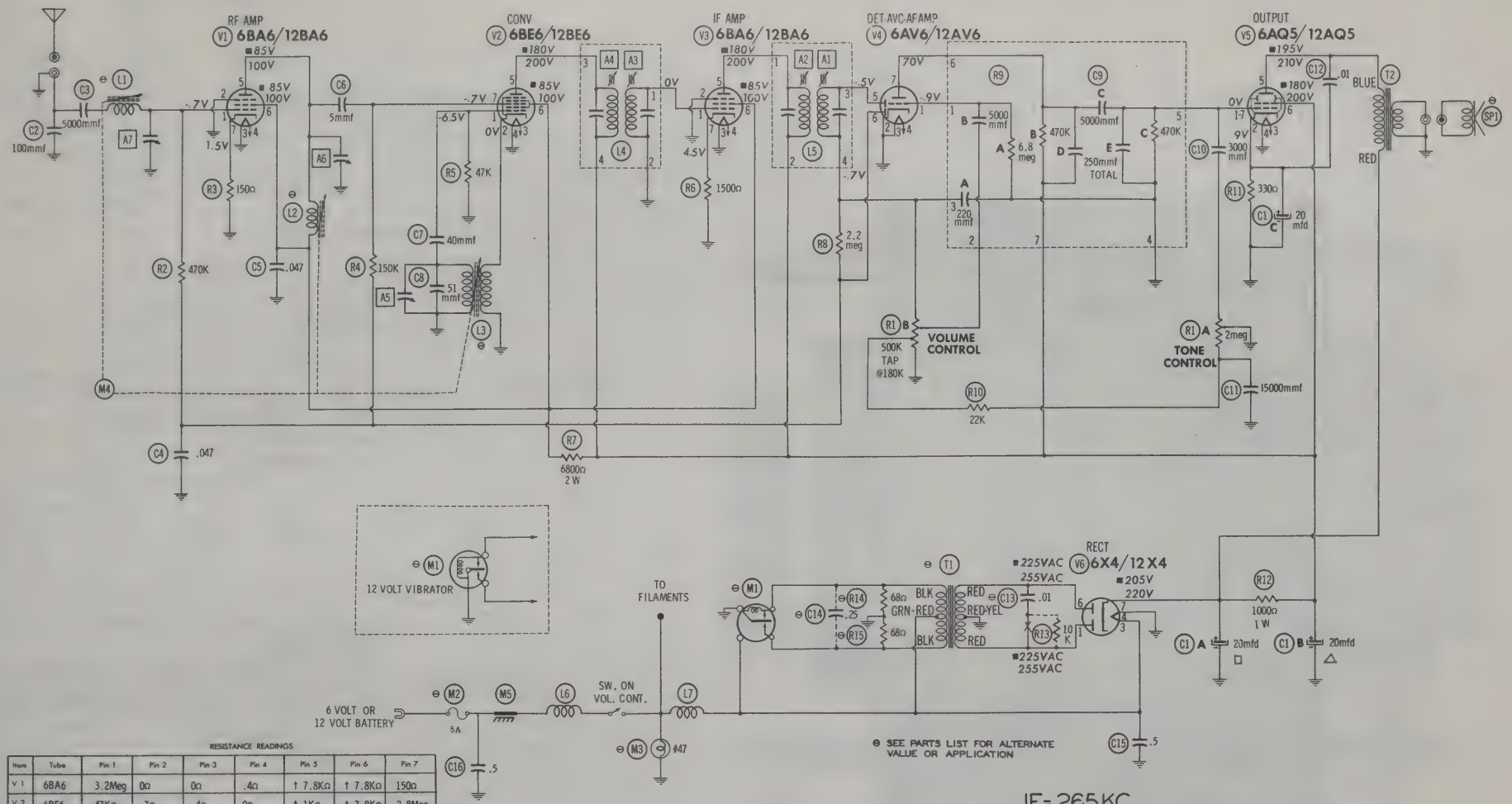

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BA6	3.2Meg	0Ω	0Ω	.4Ω	† 7.8KΩ	† 7.8KΩ	150Ω
V 2	6BE6	47KΩ	.7Ω	.4Ω	0Ω	† 1KΩ	† 7.8KΩ	2.8Meg
V 3	6BA6	35Ω	0Ω	0Ω	.4Ω	† 1KΩ	† 7.8KΩ	1.5KΩ
V 4	6AV6	6.8Meg	0Ω	0Ω	.4Ω	500KΩ	2.7Meg	† 470KΩ
V 5	6AQ5	470KΩ	330Ω	.4Ω	0Ω	† 350Ω	† 1KΩ	470KΩ
V 6	6X4	250Ω	NC	.4Ω	0Ω	NC	250Ω	600KΩ

† MEASURED FROM PIN 7 OF V6.
NC NO CONNECTION.
■ MODEL MP-126 MEASUREMENT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 6.3 volts for voltage readings.
5. Nominal tolerance on components values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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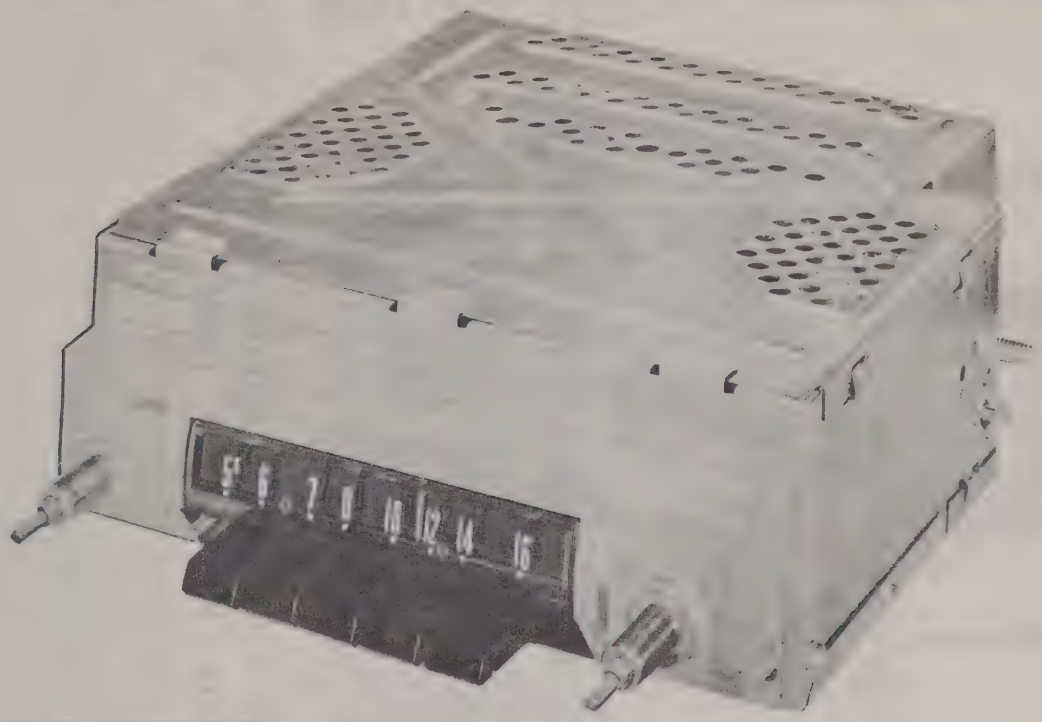

FORD MODEL
66MF (FDR-18805-B1)

TRADE NAME	Ford Model 66MF (FDR-18805-B1) (For 1956 Ford Automobiles)
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois
TYPE SET	Battery Operated Custom Built AM Superheterodyne Automobile Receiver
TUBES (Six)	Types 12BA6 RF Amp., 12BE6 Converter, 12AU6 IF Amplifier, 12AV6 Det.-AVC-AF Amp., 12AB5 Output, 12X4 Rectifier
POWER SUPPLY	12 Volt Storage Battery — RATING 2.5 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	540KC-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V2). Low side to chassis.	265KC (400∿Mod)	High frequency end stop	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	Fig. 1	Thru dummy to antenna receptacle	1605KC	"	"	A5, A6, A7	"

With receiver installed in car and antenna fully extended, tune in a weak station near 1400KC and adjust A7 for maximum volume.

PUSHBUTTON ADJUSTMENT

1. Pull pushbutton out.
2. Tune manually to desired station.
3. Reset pushbutton by pushing firmly.
4. Repeat on remaining pushbuttons.

POINTER CALIBRATION

Tune receiver to 1600KC signal and rotate pointer adjustment cam until pointer coincides with 16 on dial.

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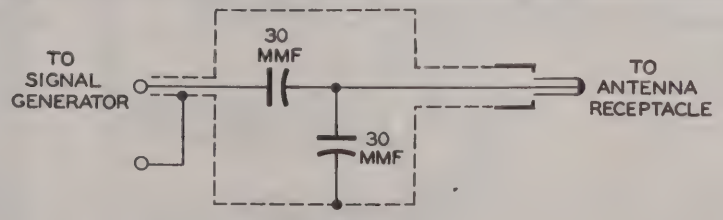

FIG. 1

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12BA6	
V2	Converter	12BE6	
V3	IF Amplifier	12AU6	

ITEM No.	USE	TYPE	NOTES
V4	Det.-AVC-AF Amplifier	12AV6	
V5	Output	12AB5	
V6	Rectifier	12X4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲10	350	23A485677	AFH3-104	C077	FP328	TMT89	T-455	TVL-3630
B	■15	350							
C	20	25							

FIXED CAPACITORS

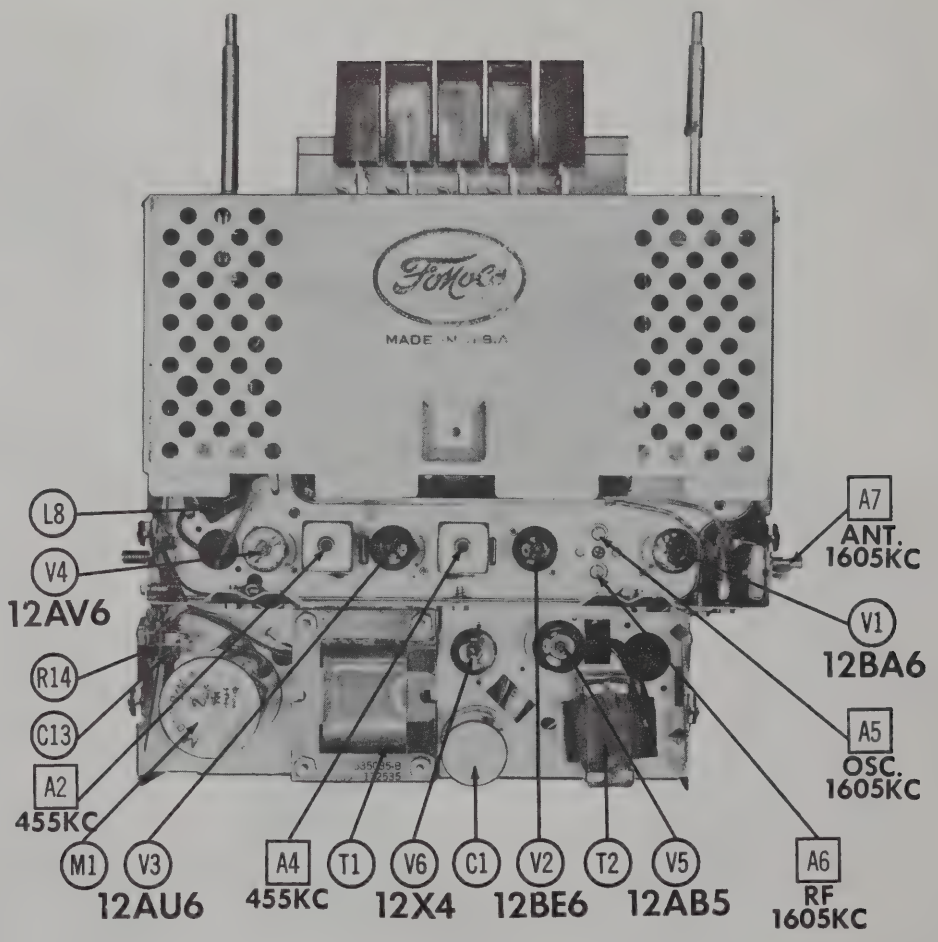
Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	120		21R114167							
C3	100		21R410036	N750-DI0001	TCN-100	N042	N750L-101	NT-531	5TCU-T1	
C4	.05	200	8R121005	BPD-05	DF-503			PT415	2TM-S5	
C5	8.2		21R120547	NP0-SI8.2		Z016	NP0A-8R2			
C6	47		21R114207	N750-DI000047	TCN-47	N033	N750K-470	NT-5447	5TCU-Q47	
C7	.05	400	8R121567	BPD-05	DF-503	CUB4S5		PT415	4TM-S5	
C8	4.7		21R115955	NP0-SI4.7	TCZ-4R7	TZ07	NP0A-4R7	ZT-5547	5TCUB-V47	
C9	10000		21R482726	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C10	10000		21R482726	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C11	.003	600	8R121569	SI3000	D6-302	CUB6D3	GP2-333-302	PT623	6TM-D3	
C12	.015	200	8R122256	BPD-015	DD16-153	CUB6S15	817-015	PT6115	6TM-S15	
C13	330		21R410118	BPD-00033	DD-331	G056	811-331	UC-5333	5GA-T33	
C14	.003	600	8R121569	SI3000	D6-302	CUB6D3	GP2-333-302	PT623	6TM-D3	
C15	.04	1000	8A121549	P1089-04		CUB16S4		PT1614	MB-S4	
C16	.5	100	8K122076	P185N-5		MP2P5		RF480	68P20	
C17	.5	100	8K122076	P185N-5		MP2P5		RF480	68P20	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST-ANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	2Meg	½	18B534483					Tone (Panel)
B	500KΩ	½						Volume & switch-tapped @ 150KΩ (Rear)
R2	3000Ω	1	18K534966		39-3000			Sensitivity (Wire wound)

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MOTOROLA PART No.	IRC PART No.	
R3	470KΩ		6R6032	BTS-470K	
R4	10KΩ	1	6R6430	BTA-10K	
R5	47KΩ		6R6056	BTS-47K	
R6	1Meg		6R6004	BTS-1Meg	
R7	12KΩ	1	6K533221		Note 1
R8	220Ω		6R3933	BTS-220	
R9	2.2Meg		6R3927	BTS-2.2Meg	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MOTOROLA PART No.	IRC PART No.	
R10	47KΩ		6R6056	BTS-47K	
R11	27KΩ		6R6434	BTS-27K	
R12	4.7Meg		6R2122	BTS-4.7Meg	
R13	1Meg		6R6004	BTS-1Meg	
R14	220KΩ		6R6015	BTS-220K	
R15	220Ω	1	6R6389	BTA-220	
R16	39Ω		6R2085	BTS-39	
R17	2200Ω	1	6A533220		Note 1

Note 1. Non-insulated type resistor.

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	12VCT @1.3A	460VCT @.047A			25C535035-B	V3903	P2978	P6489	22R52	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	7KΩ	3-4Ω	25B534936-B						

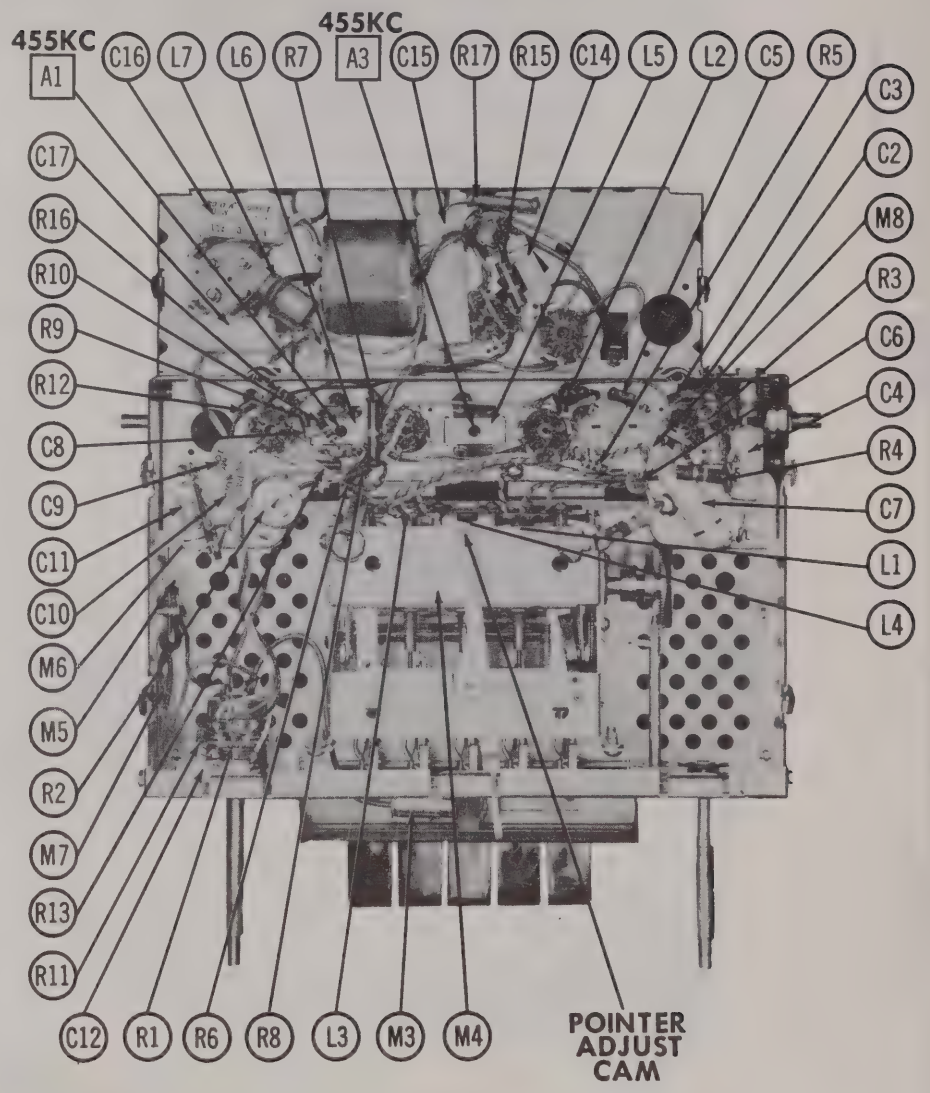
SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	RCA TYPE No.	
SP1	6"x 9"	PM	3-4Ω	50D530699	69A2	238S1	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil	14.5Ω		24K536048				Core part #76K536035
L2	RF Coil	5Ω		24A535029				48 Microhenries, wound on 22KΩ resistor
L3	RF Coil	5.5Ω		24K536042				Core part #76K536035
L4	Osc. Coil	.8Ω	2.4Ω	24K536043				Core part #76C536036
L5	Input IF	45Ω	45Ω	24B532152	16-6752	BC-350	12-H1	
L6	Output IF	44Ω	44Ω	24K532153	16-6754	BC-354	12-H6	
L7	Vib. Hash Choke	.1Ω		24A534494				
L8	Fil. Choke	.2Ω		24A535000				123 Microhenries

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FRE-QUENCY	REPLACEMENT DATA				NOTES
				MOTOROLA PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	12V	115∿	48B522000	6301	G859	6326	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MOTOROLA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	1AG	5A	65R122345	9K534968	301005. (1AG 5A)		AGA5	HIF

PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M3	Dial Light	65T535060	#57X
M4	Tuner	77K535086	Permeability (complete) Includes L1, L3, L4 - Not used in some versions
	or		
	Tuner	77E534399	Permeability (complete) Includes L1, L3, L4 - Not used in some versions
M5	Spark Plate	64K532087	"A" Lead
M6	Spark Plate	64K532087	Filament
M7	Spark Plate	64K532087	Dial Light
M8	Capacitor Assy.	20B535030	Dual-Osc. trimmer (A5) (370-450MMF) , RF trimmer (A6) (230-330MMF). Also consists of 47MMF fixed capacitor
	Knob	36B534451	Dummy
	Knob	36A534450	On-off-volume & tuning
	Pushbutton	38B534937	5 Used
	Dial Scale	34C534863	
	Dial Pointer	1A535313	Used with tuner part #77E534399
	Dial Pointer	1K536034	Used with tuner part #77K535086

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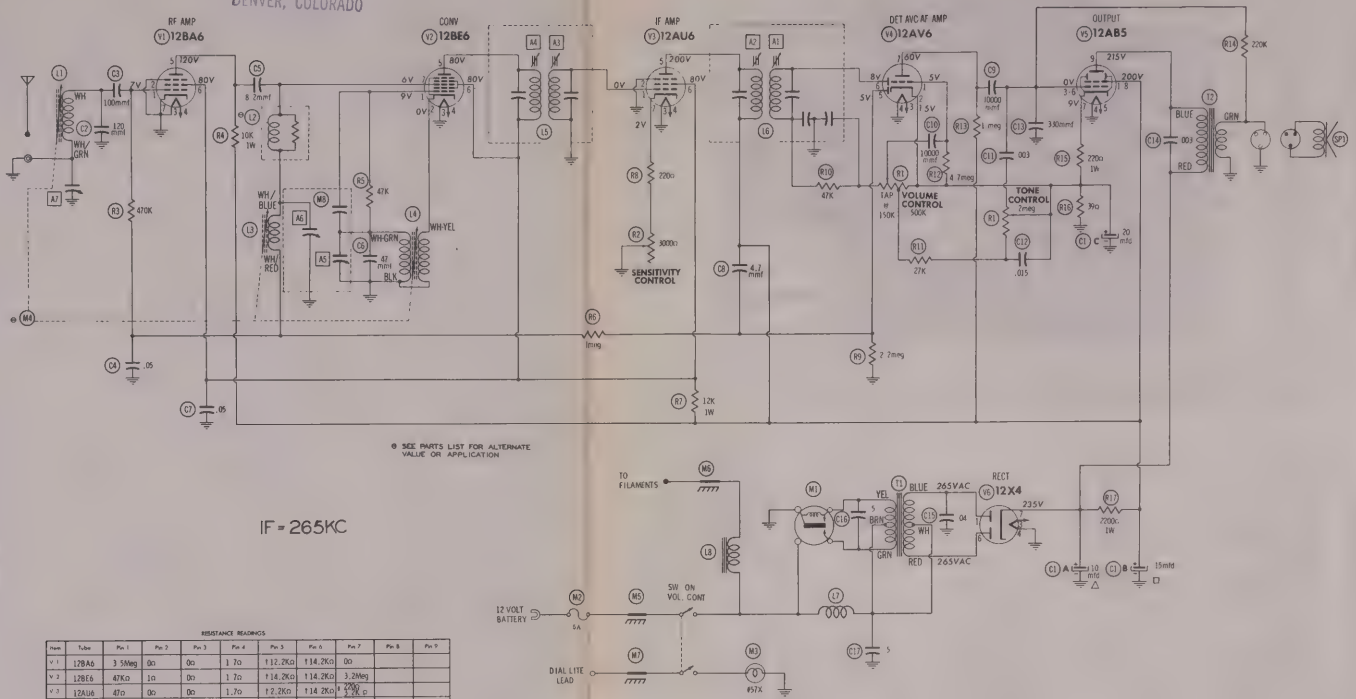

⊕ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	12BA6	3.5Meg	0Ω	0Ω	1.7Ω	†12.2KΩ	†14.2KΩ	0Ω		
V 2	12BE6	47KΩ	1Ω	0Ω	1.7Ω	†14.2KΩ	†14.2KΩ	3.2Meg		
V 3	12AU6	47Ω	0Ω	0Ω	1.7Ω	†2.2KΩ	†14.2KΩ	‡ 220Ω 3.2K Ω		
V 4	12AV6	4.7Meg	3KΩ	1.7Ω	0Ω	2.2Meg	500KΩ	† 1Meg		
V 5	12AB5	† 2.2KΩ	TP	220KΩ	0Ω	1.7Ω	220KΩ	260Ω	2.2KΩ	† 650Ω
V 6	12X4	220Ω	NC	1.7Ω	0Ω	TP	240Ω	27KΩ		

† MEASURED FROM PIN 7 OF V6.
‡ READING VARIES WITH SETTING OF SENSITIVITY CONTROL.
NC NO CONNECTION.
TP TIE POINT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1800 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12 volts for voltage readings.
5. Nominal tolerance on components values makes possible a variation of ± 10% in voltage and resistance readings
6. Volume control at maximum, no signal applied for voltage measurements

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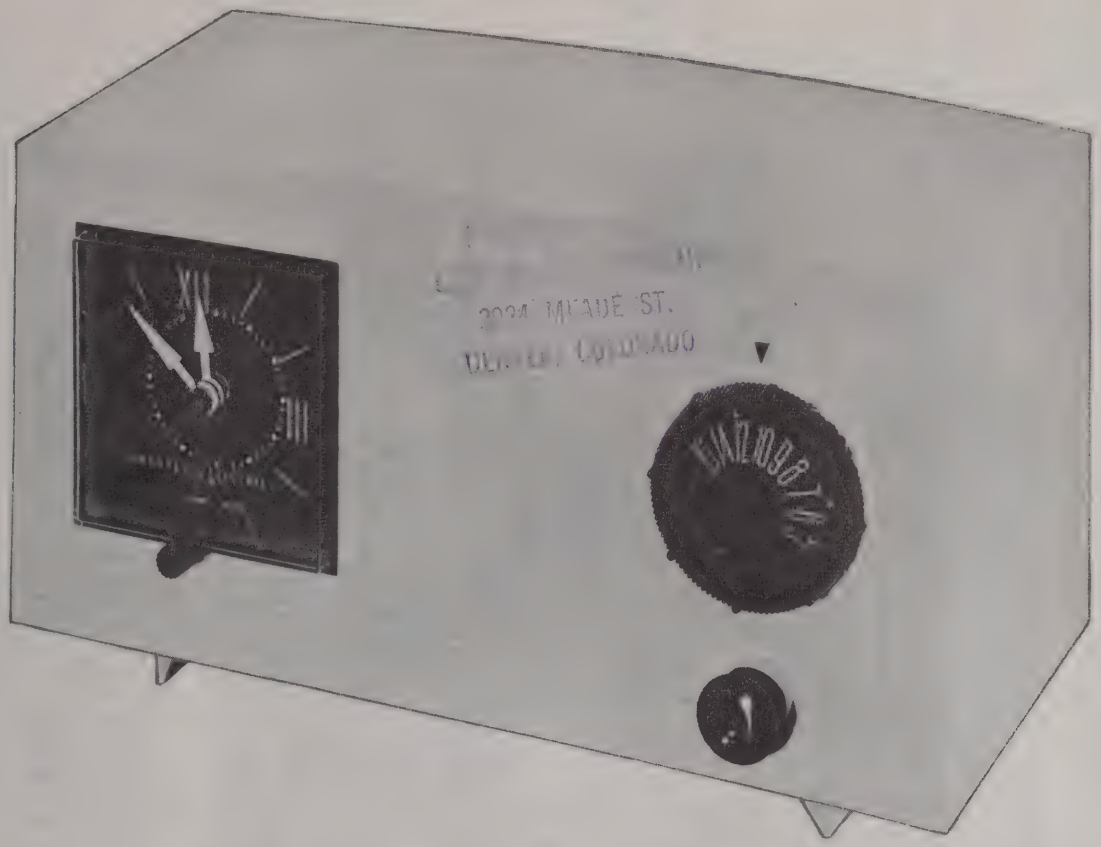

GENERAL ELECTRIC
MODEL 895

GENERAL ELECTRIC
MODEL 895

TRADE NAME	General Electric Model 895
MANUFACTURER	General Electric Co., Electronics Dept., Electronics Park, Syracuse, N. Y.
TYPE SET	AC Operated AM Superheterodyne Receiver with Electric Clock
TUBES (Four)	Types 12AU6 Converter, 12AV6 Det. -AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	105-120 Volts AC-60 Cycles
RATING	.23 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540KC-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05MFD	High side oto pin 1 (grid) of 12AU6 (V1). Low side to B-.	455KC (400~ Mod.)	Tuning gang fully open	Across Voice Coil	A1, A2*	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1620KC	"	"	A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1500KC	Tune to 1500KC signal	"	A4	"

* Adjust A1 with 10KΩ resistor across primary of L3.
Adjust A2 with 10KΩ resistor across secondary of L3.

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PARTS LIST AND DESCRIPTIONS

GENERAL ELECTRIC MODEL 895

PARTS LIST AND DESCRIPTIONS (Continued)

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12AU6	
V2	Det.-AF Amp.	12AV6	
V3	Output	50C5	
V4	Rectifier	35W4	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	G. E. PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2.7KΩ	3-4Ω	RTO-176				26S58 ①		① Use original channel.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	G. E. PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	60	150	RCE-217	RE1038				CATP-526.5	R2212 *
B	20	150							
C	5	25							

* Unit must be ordered from manufacturer.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	G. E. PART No.	QUAM PART No.	RCA TYPE No.	
SP1	4"	PM	3-4Ω	ROP-035	4A07	223S1	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	G. E. PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	68		UCG-1024	NPO-SI68	D6-680	TZ-26	801-680		5TCC-Q68	
C3	4		RCW-3209							
C4	1.5		RCN-048	NPO-SI1.5	TCZ-1R5	TZ-04	NPOA-1R5	ZT-5515	5TCCB-V15	
C5	100		RCW-3079	NPO-DI100	TCZ-100	TZ-30	NPO-337-101	MC235	5TCC-T1	
C6A	3500		RCW-3036	PA-245	D6-332	K077	811-0033	UC-5233	5HK-D33	
B	220				DD-221	G051	811-221	UC-5322	5GA-T22	
C	5000				DD-502	K080	811-005	DC525	5HK-D5	
C7	10000		RCW-3186	BPD-01	DD-103	K082	811-01	DC511	5HK-S1	
C8	.047	600	RCN-053	BPD-05	DF-503	CUB6S47		PT6147	6TM-S47	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	G. E. PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Stick	.3Ω		RLL-068				
L2	Osc. Coil	1.4Ω	7.8Ω	RCL-136				Tertiary Winding=1.9Ω
L3	IF Trans.	39Ω *	39Ω	RTL-184				* Tap at .5Ω

MISCELLANEOUS

ITEM No.	PART NAME	G. E. PART No.	NOTES
M1	Tuning Cap.	RCT-093	2 Gang (15-290MMF, 19-125MMF)
M2	Clock Assy.	RZC-055	
	Cabinet	RAU-453	
	Knob	RDK-357	Volume
	Knob	RDK-516	Tuning
	Knob	RZK-021	Clock
	Crystal	RZW-024	Clock

CONTROLS

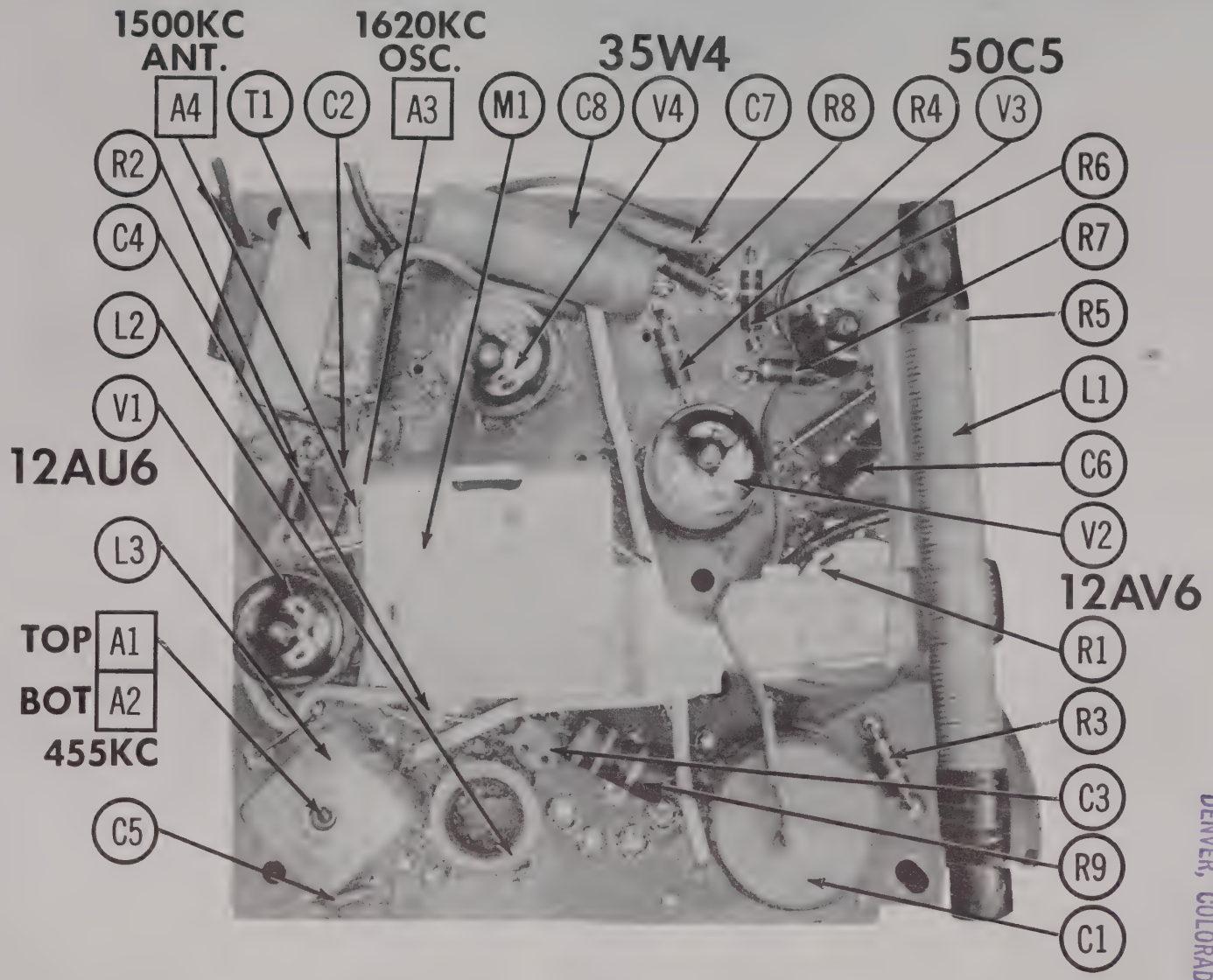
ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	G. E. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	2Meg	½	RRC-335	AB-76	A47-2Meg-Z	Q13-139	U-55	Volume
B	Shaft		Not Req.	AK-4	KSS-3	Not Req.	Not Req.	Attach to R1A.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	G. E. PART No.	IRC PART No.	
R2	3.3Meg			BTS-3.3Meg	Note 1
R3	22KΩ			BTS-22K	Note 2
R4	6.8Meg			BTS-6.8Meg	
R5	470KΩ			BTS-470K	
R6	470KΩ			BTS-470K	
R7	180Ω			BTS-180	
R8	5600Ω			BTS-5600	
R9	33Ω	2			

Note 1. Some versions use 2.2Meg in this application.
Note 2. Not used in some versions.

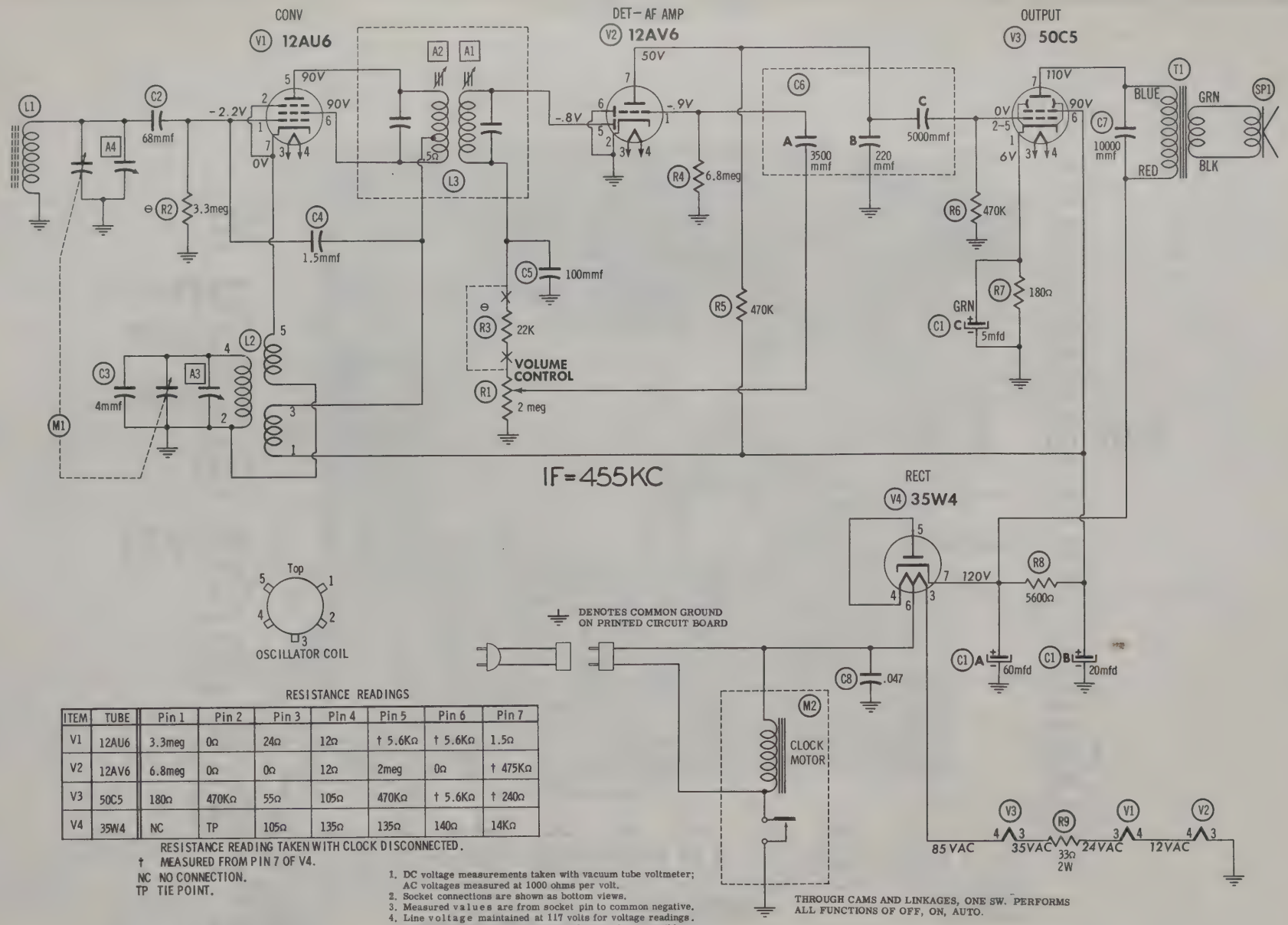


CHASSIS TOP VIEW

GENERAL ELECTRIC
MODEL 895

SET 325 FOLDER 6

L. F. PARKINSHIP
3924 MEADE ST.
DENVER, COLORADO



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12AU6	3.3meg	0Ω	24Ω	12Ω	† 5.6KΩ	† 5.6KΩ	1.5Ω
V2	12AV6	6.8meg	0Ω	0Ω	12Ω	2meg	0Ω	† 475KΩ
V3	50C5	180Ω	470KΩ	55Ω	105Ω	470KΩ	† 5.6KΩ	† 240Ω
V4	35W4	NC	TP	105Ω	135Ω	135Ω	140Ω	14KΩ

RESISTANCE READING TAKEN WITH CLOCK DISCONNECTED.
† MEASURED FROM PIN 7 OF V4.
NC NO CONNECTION.
TP TIE POINT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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HALLICRAFTERS MODELS 17TS700M, MA, 17TS710T, TA, 17TS720T, TA, 17TS730TA (Ch. A2003, B2003)

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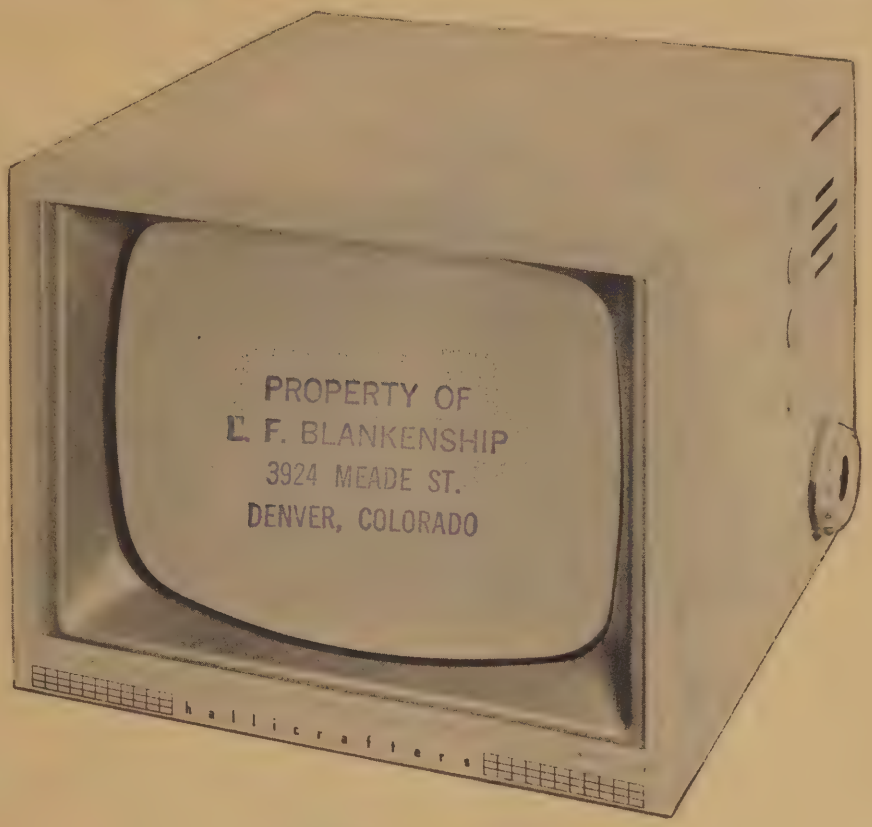

HALLICRAFTERS MODEL 17TS720T

TRADE NAME	HALLICRAFTERS	MODELS	CHASSIS
		17TS700M, 17TS710T, 17TS720T	A2003D
		17TS700MA, 17TS710TA, 17TS720TA, 17TS730TA	B2003D
MANUFACTURER	The Hallicrafters Co., 4401 W. 5th Ave., Chicago 24, Illinois		
TYPE SET	Television Receiver		
TUBES	Fourteen		
POWER SUPPLY	110-120 Volts AC-60 Cycle	RATING 1.08 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

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HALLICRAFTERS MODELS 17TS700M, MA, 17TS710T, TA, 17TS720T, TA, 17TS730TA (Ch. A2003, B2003)

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DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 6 push-on type control knobs from side panel of cabinet.
2. Remove 5 wood screws. Remove rear cover.
3. Remove picture tube socket, ion trap and speaker leads.
4. Remove cover from cabinet bottom and remove H. V. lead.
5. Remove 2 wood screws holding AC interlock and antenna bracket.
6. Remove 1 wood screw holding chassis brace at the inside top of cabinet.
7. Remove 2 chassis bolts. Remove chassis.
8. Remove 2 wing nuts. Remove speaker.

MODELS	CHASSIS
17TS700M, 17TS710T, 17TS720T	A2003D
17TS700MA, 17TS710TA, 17TS720TA, 17TS730TA	B2003D

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF Tuner Oscillator Circuit may be accomplished by removing the Channel Selector and Fine Tuning knobs.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 3 wood screws holding plastic strip at the bottom of the safety glass. Remove plastic strip and safety glass. Use extreme caution when removing safety glass.

SERVICE ADJUSTMENT LOCATION

See Tube Placement Chart On Page 5.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

To adjust the horizontal oscillator, remove rear cover and supply power to the chassis. Set the horizontal hold control to the center of its range and adjust the horizontal lock slug (L26) until the picture synchronizes horizontally.

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the buzz control (R8) for maximum volume and minimum buzz.

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube, located flush against the deflection yoke. Rotate the two rings around the neck of the tube until the picture is properly centered.

HALLICRAFTERS MODELS 17TS700M, MA, 17TS710T, TA, 17TS720T, TA, 17TS730TA (Ch. A2003, B2003)

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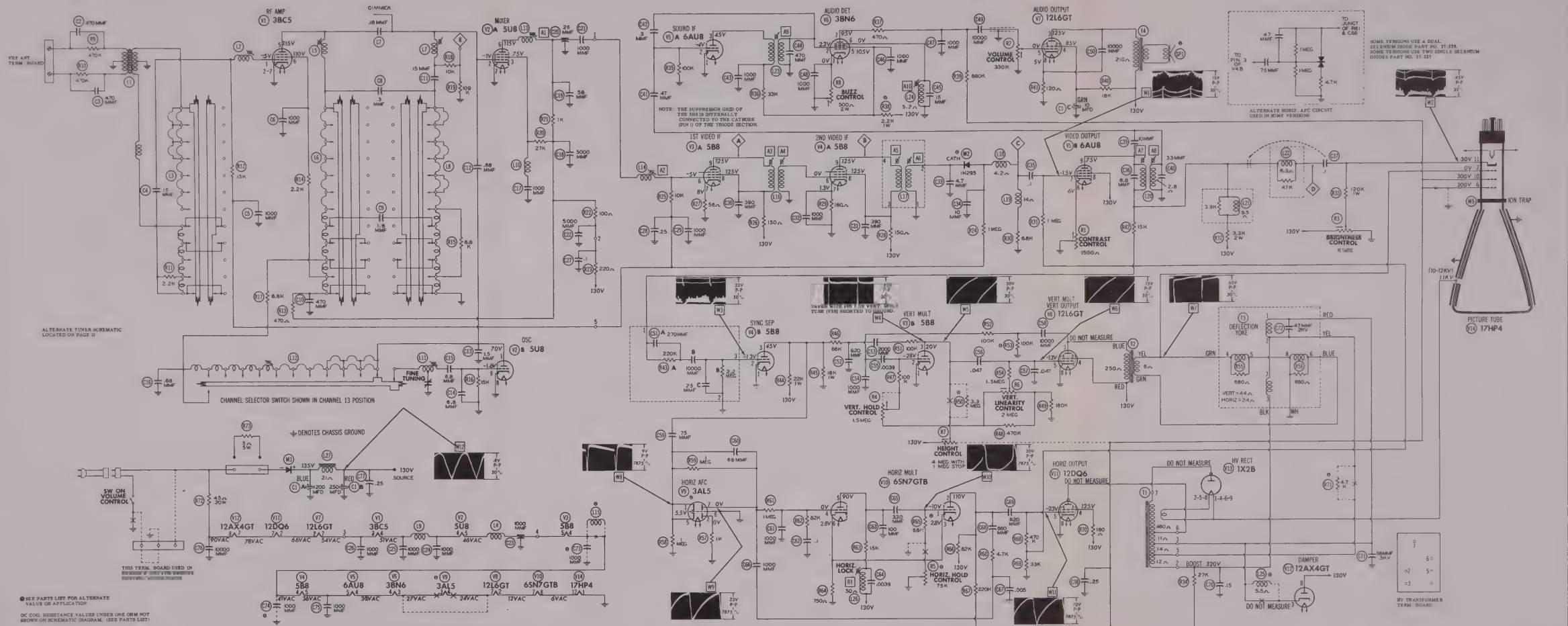
RF AMP V1 3BC5
GIMMICK
MIXER V2A 5U8
OSC V2B 5U8
SOUND IF V5 A 6AU8
AUDIO DET V6 3BN6
AUDIO OUTPUT V7 12L6GT
1ST VIDEO IF V3 A 5B8
2ND VIDEO IF V4 A 5B8
VIDEO OUTPUT V3 B 6AU8
SYNC SEP V4 B 5B8
VERT MULT V3 B 5B8
VERT MULT VERT OUTPUT V5 12L6GT
HORIZ AFC V9 3AL5
HORIZ MULT V10 6SN7GTB
HORIZ OUTPUT V11 12DQ6
HV RECT V13 1X2B
DAMPER V12 12AX4GT
PICTURE TUBE V14 17HP4
ION TRAP
DEFLECTION YOKE
VOLUME CONTROL 330K
BUZZ CONTROL 500K 2W
CONTRAST CONTROL 1500K
BRIGHTNESS CONTROL
VERT. HOLD CONTROL 1.5 MEG
VERT LINEARITY CONTROL 2 MEG
HEIGHT CONTROL 4 MEG WITH 1 MEG STOP
HORIZ HOLD CONTROL 75K
HORIZ LOCK
FINE TUNING
SW ON VOLUME CONTROL
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
ALTERNATE TUNER SCHEMATIC LOCATED ON PAGE 10
DENOTES CHASSIS GROUND
DO NOT MEASURE
BOOST 320V
130V SOURCE
ALTERNATE HORIZ. AFC CIRCUIT USED IN SOME VERSIONS
SOME VERSIONS USE A DUAL SELENIUM DIODE PART NO. 37-226. SOME VERSIONS USE TWO SINGLE SELENIUM DIODES PART NO. 37-227
NOTE: THE SUPPRESSOR GRID OF THE 5B8 IS INTERNALLY CONNECTED TO THE CATHODE (PIN 1) OF THE TRIODE SECTION.
THIS TERM. BOARD USED IN
V4 5B8 V5 6AU8 V6 3BN6 V9 3AL5 V8 12L6GT V10 6SN7GTB V14 17HP4
21VAC 36VAC 38VAC 27VAC 24VAC 12VAC 6VAC
V12 12AX4GT V11 12DQ6 V7 12L6GT V1 3BC5 V2 5U8 V3 5B8
90VAC 78VAC 66VAC 54VAC 51VAC 46VAC
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM. (SEE PARTS LIST)
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 45 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.
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HALLICRAFTERS MODELS 17TS700M, MA, 17TS710T, TA, 17TS720T, TA, 17TS730TA (Ch. A2003, B2003)

HALLICRAFTERS MODELS 17TS700M, MA, 17TS710T, TA, 17TS720T, TA, 17TS730TA (Ch. A2003, B2003)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use an isolation transformer to protect the test equipment.
The high voltage lead should be securely taped away from the chassis.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt bias battery to the ungrounded side of C28. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to floating tube shield over converter tube.	44. 25MC (10MC Swp.)	42. 75MC 45. 75MC	Any unused channel	Vert. amp. thru detector (Fig. 1) to point Ⓐ. Low side to chassis.	A1, A2	Adjust for response curve similar to Fig. 2 with markers in proper positions.
2.	1000MMF	High side to pin 6 (grid) of 5B8 (V3). Low side to chassis.	"	"	"	Vert. amp. thru detector (Fig. 1) to point Ⓑ. Low side to chassis.	A3, A4	"
3.	"	High side to pin 6 (grid) of 5B8 (V4).	"	"	"	Vert. amp. thru detector (Fig. 1) to point Ⓒ. Low side to chassis.	A5, A6	"
4.	"	High side to point Ⓔ. Low side to chassis.	"	"	"	"		Retouch A1 thru A6 as needed to obtain response curve on scope similar to Fig. 3.

SOUND IF ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Set volume control for normal volume.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	.001MFD	High side to pin 9 (plate) of 6AU8 (V5A). Low side to chassis.	4. 5MC (400∿ Mod.) (50KC Swp.)	4. 5MC (400∿ Mod.)	Any unused channel	Across secondary of audio output transformer.	A10	Set buzz control (R8) 90 degrees from its maximum clockwise rotation. Adjust A10 for maximum 400∿ indication on scope.
6.	"	"	"	"	"	"	A7, A8, A9	Attenuate generator output so that signal level is below limiting level of the 6BN6 as evidenced by background hiss and noise. Adjust A7, A8 and A9 for maximum response on scope.
7.	"	"	Not used	4. 5MC (400∿ Mod.)	"	"	R8	Use high signal generator output and adjust R8 for MINIMUM 400∿ indication on scope.
8.	"	"	4. 5MC (400∿ Mod.) (50KC Swp.)	4. 5MC	"	"	A10	With volume control at low level retouch A10 for maximum 400∿ indication on scope. Remove test equipment. Connect antenna and tune in weakest TV station in that area and retouch R8 for MINIMUM buzz and hiss. Tune in strongest TV station and adjust A10 for clearest sound.

OSCILLATOR ALIGNMENT

The oscillator section of this receiver has been properly aligned at the factory and is very stable. Alignment of this portion of the receiver should not be necessary in the field.

RF AND MIXER ALIGNMENT

This portion of the tuner has been properly aligned at the factory and is very stable. Alignment of this portion of the receiver should not be necessary in the field.

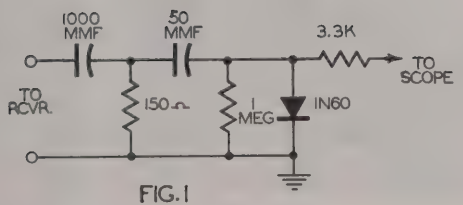


FIG. 1

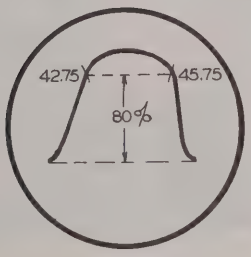


FIG. 2

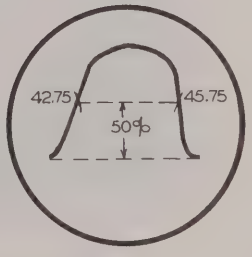
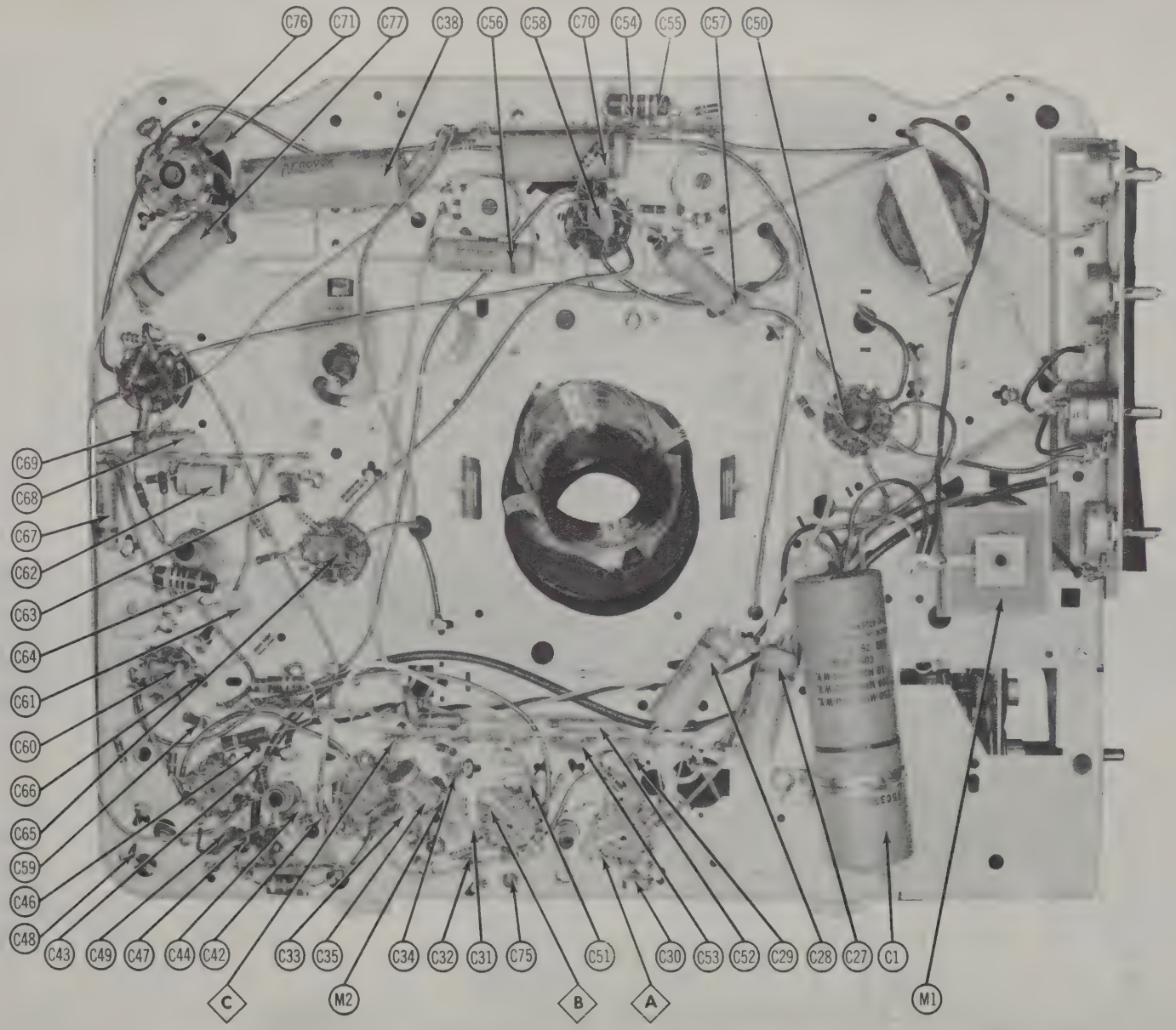


FIG. 3



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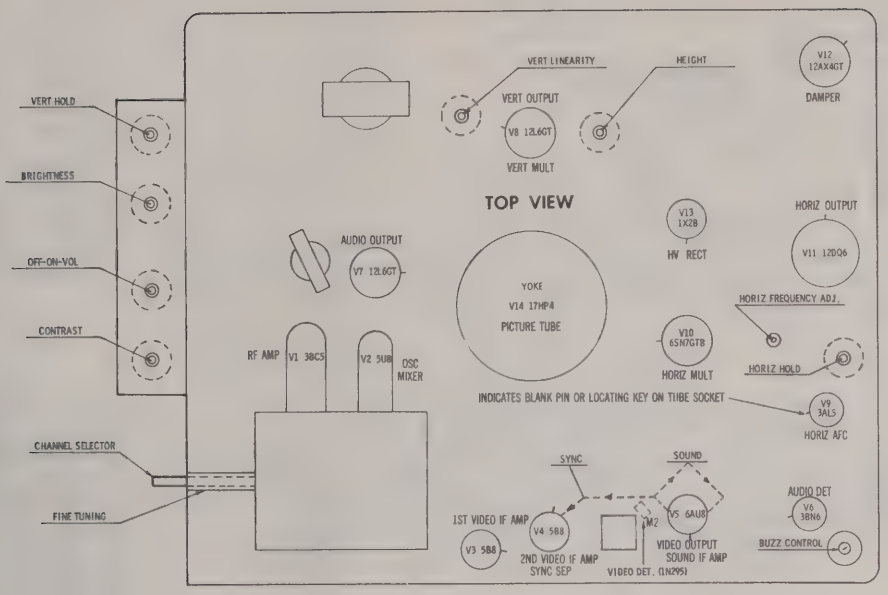
DENVER, COLORADO

CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

TUBE PLACEMENT CHART



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DENVER, COLORADO

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

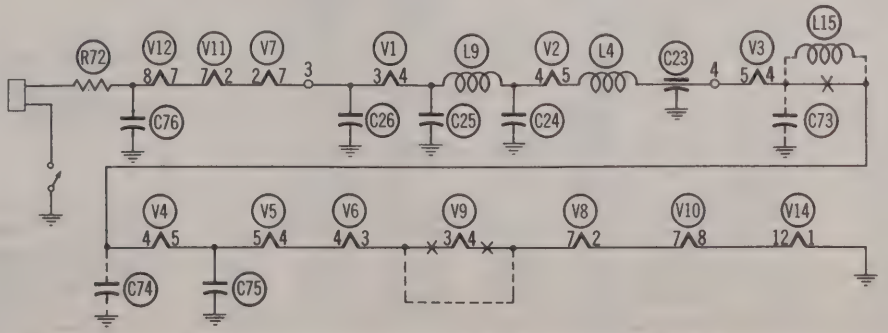
POWER SUPPLY FAILURE
No raster, no sound - Selenium Rectifier (M1)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V2, V3, V4, V5
No pic, no sound, has snow - V1, V2, V3
No pic, has sound, has raster - V5, V14
Has pic, no sound - V5, V6, V7

SYNC FAILURE
No vert. sync - V3, V4, V8
No horiz. sync - V4, V9, V10
No vert. or horiz. sync - V4

SWEEP FAILURE
No raster, has sound - V10, V11, V12, V13, V14
No vertical deflection - V3, V8
Poor vert. linearity or foldover - V3, V8
Poor horiz. linearity or foldover - V10, V11, V12
Narrow picture - V10, V11, V12, V13, M1
Vert. off freq. - V3, V4, V8
Horiz. off freq. - V4, V9, V10

NOTE: Since this receiver employs tubes used in a series-parallel filament network, an open filament in any tube in series may cause the set to be oinoperative. (See Circuit Below).



SET 325 FOLDER 7

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	RF Amplifier	3BC5	
V2	Mixer-Oscillator	6U8	
V3	1st. Video IF Amplifier - Vert. Mult.	6H6	
V4	2nd. Video IF Amplifier - Sync Separator	6H6	
V5	Video Output-Sound IF Amp.	6AU6	
V6	Audio Detector	3BA6	

Note 1. Not used in some versions.

ITEM No	USE	TYPE	NOTES
V7	Audio Output	12L6GT	
V8	Vert. Mult.-Vert. Output	12L6GT	
V9	Horiz. AFC	6AL5	Note 1
V10	Horiz. Mult.	6BN7GTB	
V11	Horiz. Output	12DQ6	
V12	Damper	12AX4GT	
V13	HV Rectifier	1X2B	

PICTURE TUBE

ITEM No	REPLACEMENT DATA				NOTES
	Hallicrafters PART No.	CBS PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	
V14	17HP4	17HP4/ 17HP4 17HP4B ①		17HP4 17HP4 17HP4B ①	① Aluminized ② Silver screen "65"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA					
	CAP.	VOLT.	Hallicrafters PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	300	150	40-333	RE1D97		WT930	CDB6015	D-095	KS515 *
B	150	150						MT-1506	
C	10	150							

* Unit must be ordered from Mfgr.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA								NOTES
	CAP.	VOLT.	Hallicrafters PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.		
C2	470	500	47X20B471M	1464-00047	DM-471	5WS1N7	GPMK-471	UC-5347	1FM-347		
C3	470	500	47X20B471M	1464-00047	DM-471	5WS1N7	GPMK-471	UC-5347	1FM-347		
C4	15			NPO-SL15	TCZ-15	TZ1I	NPOK-150		5TCC-Q15		
C5	1000			BPD-001	DD-102	KD69	801-001	DC-521	5HK-D1		
C6	1000			BPD-001	DD-102	KD69	801-001	DC-521	5HK-D1		
C7	.15										
C8	.2										
C9	1.8										
C10	470										
C11	15			NPO-DL15	TCZ-15	TZ1I	NPOK-150		5TCC-Q15		
C12	.68				TCZ-R68	TZ02	NPOA-6R68				
C13	1.5			NPO-SL1.5	TCZ-1R5	TZ04	NPOA-1R5	ZT-5515	5TCCB-V15		
C14	6.8										
C15	6.8										
C16	.68				TCZ-R68	TZ02	NPOA-6R68				
C17	1000			BPD-001	DD-102	KD69	801-001	DC-521	5HK-D1		
C18	5000			BPD-005	DD-502	KD60	811-005	DC-538	5HK-D5		
C19	68			NPO-SL06	TCZ-56	TZ34	NPO-357-506				
C20	25										
C21	1000			BPD-001	DD-102	KD69	801-001	DC-521	5HK-D1		
C22	5000			BPD-005	DD-502	KD60	811-005	DC-538	5HK-D5		
C23	1000										
C24	1000			BPD-001	DD-102	KD69	801-001	DC-521	5HK-D1		
C25	1000			BPD-001	DD-102	KD69	801-001	DC-521	5HK-D1		
C26	1000			BPD-001	DD-102	KD69	801-001	DC-521	5HK-D1		
C27	.1	400	46A1104J	P468N-1	DF-104	CUB4P1		PT401	4TM-P1		
C28	.25	200	46A7254J	P268N-25		CUB6P25		PT6025	6TM-P25		
C29	1000		47A330	BPD-001	DD-102	KD69	801-001	DC-521	5HK-D1		
C30	390		47A804	BPD-00039	DD-391	GO58	811-391	DC-5339	5GA-T39		
C31	390		47A804	BPD-00039	DD-391	GO58	811-391	DC-5339	5GA-T39		
C32	1000		47A330	BPD-001	DD-102	KD69	801-001	DC-521	5HK-D1		
C33	4.7		47B403-6	NPO-SL4.7	TCZ-4R7	TZ07	NPOA-4R7	ZT-5547	5TCCB-V47		
C34	10		47CA30A100K	NT50-SL10	TN01	NT50A-100		NT-541	5TCU-Q1		
C35	.1	150	46A343	P268N-1	DF-104	CUB2P1		PT401	2TM-P1		
C36	56		47B419								
C37	.1	400	46A1104J	P468N-1	DF-104	CUB4P1		PT401	4TM-P1		
C38	.25	600	46A3254J	P668N-25		CUB6P25		PT6025	6TM-P25		
C39	10			SL10	D6-100	TZ09	GPIK-100	UC-541	5GA-Q1		
C40	33		47B478	N080-SL33							
C41	47		47CA30A470M	SI47	D6-470	TP39	GPIK-470	UC-5447	5GA-Q47		
C42	3		47A807	BPD-SL3	TCZ-3R3	Z007	NPOA-030	ZT-553	5TCCB-V33		
C43	1000		47A230	BPD-001	DD-102	KD69	801-001	DC-521	5HK-D1		
C44	470	500		1464-00047	D6-471	SS1T47	811-471		MS-347		
C45	15		47B480								
C46	1000		47A330	BPD-001	DD-102	KD69	801-001	DC-521	5HK-D1		
C47	1000		47A330	BPD-001	DD-102	KD69	801-001	DC-521	5HK-D1		
C48	1000		47A330	BPD-001	DD-102	KD69	801-001	DC-521	5HK-D1		
C49	10000		47A334	BPD-01	DD-103	KD63	811-01	DC-511	5HK-S1		
C50	10000		47A334	BPD-01	DD-103	KD63	811-01	DC-511	5HK-S1		
C51A	270					GO64	811-271	DC-5327	5GA-T27		
B	10000		†	†PA-353	†PC-353	KD63	811-01	DC-511	5HK-S1		
C	25					GO36	831-250	DC-5435	5GA-Q25		
C52	820		47-506	HR30	D6-821	GO67	GPIL-821		5GA-T82		
C53	2000		47A395	BPD-002	DD-202	KD72	801-002	DC-522	5HK-D2		
C54	1000		47A303	BPD-001	DD-103	KD69	801-001	DC-521	5HK-D1		
C55	.0039	400	46SB239E4	1464-00039		SS1D39		ME-339			
C56	.047	400	46A9472E	BPD-05	DF-503	CUB4S47		PT4147	4TM-S47		
C57	.047	600	46A9473E	BPD-05	DF-503	CUB6S47		PT6147	6TM-S47		
C58	10000		47-506	BPD-01	DD-103	KD63	811-01	DC-511	5HK-S1		
C59	75		47C30A680M	1469-000075	TCZ-75	3ZR5Q1	NPO-337-750	ZT-5475	MS-475		
C60	68			BPD-SL68	TCZ-68	TZ33	NPOL-680		5TCU-Q68		
C61	1000		47A388	1464-001	DD-102	1RS01	811-102	MCH2E5	5GA-J1		
C62	.1	150	46A243	P268N-1	DF-104	CUB2P1		PT401	2TM-P1		
C63	10		47X20B301K	1464-0061	TCZ-100	2ZR5T1	NPO-337-101	MCE2X5	MS-31		
C64	.0039	400	46SB239E4	1469-0039		1RS1S9		ME-339			
C65	.047	400	46A9473E	1464-00033		1RS1T3		ME-333			
C66	1000		47A230	BPD-001	DD-102	KD69	801-001	DC-521	5HK-D1		
C67	.005	200	47A188	BPD-005	D6-502	CUB6D5	GP3-333-502	PT635	6TM-D5		
C68	680	500	47X20B681K	1464-00068	D6-681	1RS1T68	811-681		5GA-T68		
C69	820		47-506	1464-00082		1RS1T82			MS-382		
C70	.15	600	46A3154J	P668N-15		CUB4P15		PT0015	6TM-P15		
C71	68	3000	47B473	BVD-30-68	DD30-680	V3Q68	3EY-680	MC1.466	30GA-Q68		
C72	47	3000	47-489	BVD-30-47	DD30-47	V3Q68	3EY-470	MC1.447	30GAB-Q47		
C73	1000		47A230	BPD-001	DD-102	KD69	801-001	DC-521	5HK-D1		Note 1
C74	1000		47A230	BPD-001	DD-102	KD69	801-001	DC-521	5HK-D1		Note 1
C75	1000		47A330	BPD-001	DD-102	KD69	801-001	DC-521	5HK-D1		
C76	10000		47A334	BPD-01	DD-103	KD63	811-01	DC-511	5HK-S1		
C77	.25	200	46A7254J	P268N-25		CUB2P25		PT6025	2TM-P25		

† Items C51A, C61B, C51C, R43A and R43B are combined in one unit.
Note 1. Not used in some versions.

PARTS LIST AND DESCRIPTIONS

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Hallicrafters PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1500Ω	1	2SB1102	AB-515		Q17-109	U-5	Contrast
B	Shaft		Not Req.	AK-3		Not Req.	Not Req.	Attach to R1A.
R2A	250Ω	½	2SB1101	B-E-5	A47-500E-2	Q13-132	TA3544	Volume
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R2A.
C	Switch		Not Req.	Not Req.	SWZ-13	76-1	US-36	Attach to R2A.
R3	5Meg	½	2SB1254			Q17-141	TA35R	Brightness
R4A	1.5Meg	½	2SB1356	AB-743	A47-1.5Meg-S	Q11-136	TA35L	Vert. Hold
B	Shaft		Not Req.	AK-3	FS-3	Not Req.	Not Req.	Attach to R4A.
R5A	75kΩ	½	2SB1305	AB-35	A47-75K-S	Q11-125	PTA15L	Horiz. Hold-Note 1
B	Shaft		Not Req.	AK-4	KSS-2	Not Req.	Not Req.	Attach to R5A.
R6A	2Meg	½	2SB1255	AB-75	A47-2Meg-S	Q11-139	PTA35L	Vert. Linearity
B	Shaft		Not Req.	AK-4	KSS-3	Not Req.	Not Req.	Attach to R6A.
R7A	4Meg	½	2SB1096	+ AB-68	+ A47+4Meg-S	+ Q11-141	+ PTA35L	Height
	with 1Meg stop							
B	Shaft		Not Req.	AK-19	RM-3	TQ	Not Req.	Attach to R7A.
R8	500Ω	2	25A1095		59-500			Buzz-Wire Wound

Note 1. Not used in some versions.
▲ Connect a 1Meg resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control (Control viewed from shaft end, terminals down).

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Hallicrafters PART No.	IRC PART No.	
R9	470KΩ		33X20X474K	BTS-470K	
R10	470KΩ		33X20X474K	BTS-470K	
R11	2200Ω			BTS-2200	
R12	15kΩ			BTS-15K	
R13	47kΩ			BTS-47K	
R14	2200Ω			BTS-2200	
R15	6800Ω			BTS-6800	
R16	15kΩ			BTS-15K	
R17	6800Ω			BTS-6800	
R18	15kΩ			BTS-15K	
R19	100kΩ			BTS-100K	
R20	27kΩ			BTS-27K	
R21	1000Ω			BTS-1000	
R22	100Ω			BTS-100	
R23	220Ω		33X20X221K	BTS-220	
R24	1Meg		33X20X105X	BTS-1Meg	
R25	10kΩ		33X20X103K	BTS-10K	
R26	15kΩ		33X20X153K	BTS-15K	
R27	5Ω		25X20X5R0K	BTS-5R	
R28	150Ω		33X20X151K	BTS-150	
R29	180Ω		33X20X181K	BTS-180	
R30	6800Ω		33X20X682K	BTS-6800	
R31	1Meg		33X20X105X	BTS-1Meg	
R32	3300Ω	3	33X40X332K	BTS-3300	
R33	130kΩ	1	33X20X134K	BTA-130K	
R34	27kΩ		33X20X273K	BTS-27K	
R35	100kΩ		33X20X104K	BTS-100K	
R36	33kΩ		33X20X333K	BTS-33K	
R37	47Ω		33X20X470K	BTS-470	
R38	2200Ω	1	33X20X222K	BTA-2200	Note 1
R39	680kΩ		33X20X684K	BTS-680K	
R40	18kΩ		33X20X183K	BTS-18K	
R41	13kΩ		33X20X133K	BTS-130	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Hallicrafters PART No.	IRC PART No.	
R42	15kΩ		23X20X153X	BTS-15K	
R43A	220kΩ		†	BTS-220K	
B	2.2Meg			BTS-2.2Meg	
R44	22kΩ	1	33X20X223X	BTA-22K	
R45	18kΩ		33X20X183X	BTA-18K	
R46	68kΩ		23X20X683X	BTS-68K	
R47	100kΩ		33X20X104X	BTS-100K	
R48	470kΩ		33X20X204X	BTS-470K	
R49	180kΩ		33X20X184X	BTS-180K	
R50	3.3Meg		33X20X335X	BTS-3.3Meg	Note 2
R51	100kΩ		33X20X104X	BTS-100K	
R52	100kΩ		33X20X104X	BTS-100K	Note 3
R53	100kΩ		33X20X104X	BTS-100K	
R54	1.5Meg		33X20X155X	BTS-1.5Meg	
R55	680Ω		33X20X681K		
R56	680Ω		23X20X681K		
R57	1000Ω				
R58	1Meg		33X20X105X		
R59	1Meg		33X20X105X		
R60	4700Ω		33X20X472X		
R61	1Meg		33X20X105X		
R62	82kΩ		23X20X823X		
R63	1Meg		33X20X105X		
R64	7500 5%		23X20X75J		
R65	68kΩ		23X20X683X		Note 4
R66	82kΩ		23X20X823X		
R67	220kΩ		23X20X224X	BTS-220K	
R68	4700Ω		23X20X472X		Note 2
R69	33kΩ		23X20X333X		
R70	180Ω		23X20X181X		
R71	4700Ω		23X20X472X		
R72	45Ω	20	24B1048	2D-50	
R73	5Ω	5	24-1075		

Note 1. Some versions use a 10kΩ 1W resistor in this application.
Note 2. Not used in some versions.
Note 3. Some versions use a 47kΩ ½W resistor in this application.
Note 4. In some versions a 150kΩ 1W resistor is used in this application, and horizontal hold control (R5) is not used.
† Items R43A, R43B, C51A, C51B, C51C are combined in one unit.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA							NOTES
		Hallicrafters PART No	Hallodenson PART No	Merit PART No	RCA TYPE No	Ram PART No	Stancor PART No	Thordarson PART No	Triad PART No	
T1	Horiz. Output Trans.	55D285								
T2	Vert. Output Trans.	55D264	Z1900 ①	A-3823 ③	32DD1 ③	V307 ②	A-8113	26S72 ②	A-10BX ②	
T3A	Yoke 70° Horiz.(20M39 Vert. (42M39	53-377	DY605 ③ ④	MDF-73 ④		T70F20/45 ④	DY-11A ③ ④	Y-10 ③ ④	Y-19-1 ③ ④	
B										

① Use 7 to 8.5 to 1 horiz ratio.
② Drill new mounting hole(s).
③ Use original horizontal damping network.
④ Ground terminal #5.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	Hallicrafters PART No	Hallodenson PART No	Merit PART No	Stancor PART No	Thordarson PART No	Triad PART No	
T4	3.2KΩ	3-4Ω	55B249	Z1901	A3025	A3332	24S50	S-12X	

SPEAKER

ITEM No.	RATINGS				REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.		Hallicrafters PART No.	QUAM PART No.	RCA TYPE No	
SP1	6"	PM	3-4Ω	85-188 ①	4A07	223S1		① Used in Models 17TS700MA, 17TS710TA, 17TS720TA, 17TS730TA, 17TS740TA, 17TS720T. ② Used in Models 17TS700M, 17TS710T, 17TS720T.
	5"	PM	3-4Ω	85-186 ②	5A07	205S2		

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	Hallicrafters PART No.	MEISSNER PART No	MERIT PART No	MILLER PART No	
L1	Ant. Trans.	0.6Ω	0Ω					
L2	Ant. Coil	0Ω						Channel 13
L3	Ant. Coils	0Ω						
L4	Fil. Choke	0Ω						
L5	RF Coil	0Ω						Channel 13
L6	RF Coils	0Ω						
L7	Mixer Grid Coil	0Ω						Channel 13
L8	Mixer Grid Coils	0Ω						
L9	Fil. Choke	0Ω						
L10	RF Coil	0Ω						
L11	Osc. Coil	0Ω						Tapped-Channel 13
L13	Osc. Coils	0Ω						
L13	Conv. Plate	.1Ω						
L14	1st Video IF	0Ω		51-3104		TV-131	6225	
L15	Fil. Choke	0Ω		53A383	19-3001		6175	. 4 Microhenries, Not used in some versions.
L16	2nd Video IF	.1Ω	.1Ω	51-2105	17-4584	TV-130	6234	
L17	3rd Video IF	.1Ω	.1Ω	50-888	17-5004 *	TV-132 *	6234 *	
L18	Series Peaking Coil	4.3Ω		53A307	19-1006		6634	18 Microhenries
L19	Shunt Peaking Coil	1.6Ω		51-3103	19-3960		6148	710 Microhenries
L20A	4.5MC Trap	.9Ω		51B1996				
B	1st Sound IF	2.8Ω						
L21	Shunt Peaking Coil	0.8Ω		51-3101	m		6134 m	596 Microhenries; Wound on 3.9KΩ resistor
L22	Series Peaking Coil	6.3Ω		51-3100	19-3180 ▲	TV-184 ▲	6180 ▲	185 Microhenries; Wound on 47KΩ resistor
L23	2nd Sound IF	.1Ω	.3Ω	51-3103				
L24	Quadrature Coil	5.2Ω		51A1857	20-1005		1480	
L25	RF Choke	5.6Ω		53A343				7, 5Microhenries; IRC Part No. CL-A-Not used in some versions.

* Use adapter plate.
m Parallel with 3.9KΩ resistor.
▲ Parallel with 47KΩ resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA						NOTES
	PRI.	SEC.	Hallicrafters PART No.	MEISSNER PART No	MERIT PART No	MILLER PART No	RCA TYPE No	Ram PART No	Thordarson PART No	
L26	50Ω		51B1538	19-1576	TV-163	6210			H5-5	

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (@ CURRENT 1000 ℃)	Hallicrafters PART No	Halldorson PART No	Merit PART No	Stancor PART No	Thordarson PART No	Triad PART No	NOTES
L27	.240A	21Ω	.5HY	56B224	C5040		C2327	23C41	C-23X	

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT	Hallicrafters PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	
M1	.340A	STA3E8	1236A	MR300	6E300	604	300	

CRYSTAL DIODES

ITEM No	ORIG TYPE	REPLACEMENT DATA		NOTES
		Hallicrafters PART No	SYLVANIA PART No	
M2	1N295 *	1NC1864	1N82	Video Det. (Pigtail)

* Some versions may use crystal diode type CK-705A in this application.

MISCELLANEOUS

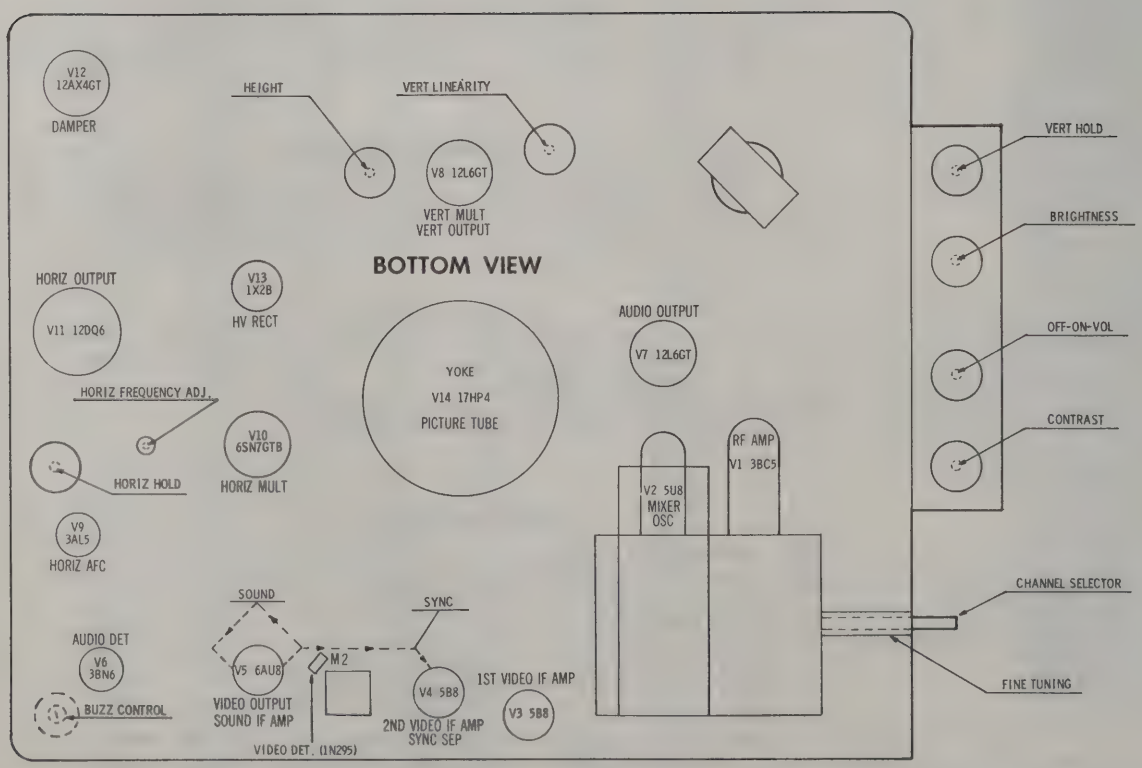
ITEM No.	PART NAME	Hallicrafters PART No.	NOTES
M3	Tuner	1E2652	VHF-Chassis A2003
	Tuner	1D2653	VHF-Chassis B2003
M4	Centering Device	21B216	
M5	Ion Trap	21B188	
	Cabinet	78-1283	Models 17TS710T, 17TS710TA
	Cabinet	78-1283	Models 17TS720T, 17TS720TA
	Cabinet	78-1279	Models 17TS700MA, 17TS700M
	Cabinet	78-1294	Model 17TS730TA
	Knob	15A798	Control (4 used)-Models 17TS710T, 17TS700MA, 17TS700M, 17TS710TA
	Knob	15-980	Control (4 used)-Models 17TS720T, 17TS730TA
	Knob	15D763	Fine Tuning
	Knob	15-947	Channel Selector-Models 17TS710T, 17TS700MA, 17TS700M, 17TS710TA
	Knob	15-951	Channel Selector-Models 17TS720T, 17TS720TA, 17TS730TA
	Mask	7A635	Models 17TS710T, 17TS720T, 17TS710TA, 17TS720TA, 17TS730TA
	Mask	TC574	Models 17TS700MA, 17TS700M
	Safety Glass	22C423	

HALLICRAFTERS MODELS 17TS700M, MA, 17TS710T, TA, 17TS720T, TA, 17TS730TA (Ch. A2003, B2003)

RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	3BC5	1Meg	0Ω	14Ω	13Ω	† 800Ω	† 3KΩ	0Ω		
V 2	5U8	† 7. 4KΩ	110KΩ	† 27KΩ	13Ω	12Ω	† 1. 3KΩ	0Ω	0Ω	15KΩ
V 3	5B8	0Ω	1Meg	† 2. 2Meg	10Ω	12Ω	1Meg	56Ω	† 170Ω	† 170Ω
V 4	5B8	0Ω	2. 2Meg	† 15KΩ	10Ω	9Ω	. 1Ω	180Ω	† 170Ω	† 170Ω
V 5	6AU8	0Ω	100KΩ	† 35KΩ	8Ω	9Ω	25Ω	1Meg	† 21Ω	† 3. 3KΩ
V 6	3BN6	200Ω	. 3Ω	7Ω	8Ω	† 2. 2KΩ	5. 2Ω	▲ 700KΩ		
V 7	12L6GT	TP	16Ω	† 230Ω	† 18KΩ	120KΩ	TP	14Ω	120Ω	
V 8	12L6GT	TP	4Ω	† 270Ω	† 21Ω	2Meg	TP	6Ω	0Ω	
V 9	3AL5	1Meg	1KΩ	7Ω	6Ω	1Meg	0Ω	2Meg		
V 10	6SN7GTB	100KΩ	† 82KΩ	750Ω	3Meg	† 15KΩ	750Ω	4Ω	2Ω	
V 11	12DQ6	TP	16Ω	TP	† 200Ω	500KΩ	TP	18Ω	0Ω	TOP CAP ▲ 17Ω
V 12	12AX4GT	NC	NC	350KΩ	NC	† 21Ω	NC	18Ω	20Ω	
V 13	1X2B		PINS	1-8	HAVE	INF	RESISTANCE			TOP CAP ▲ 475Ω
V 14	17HP4	0Ω	12Ω	PIN 6 ▲ 27KΩ	PIN 10 ▲ 27KΩ	PIN 11 † 300KΩ	PIN 12 2Ω			

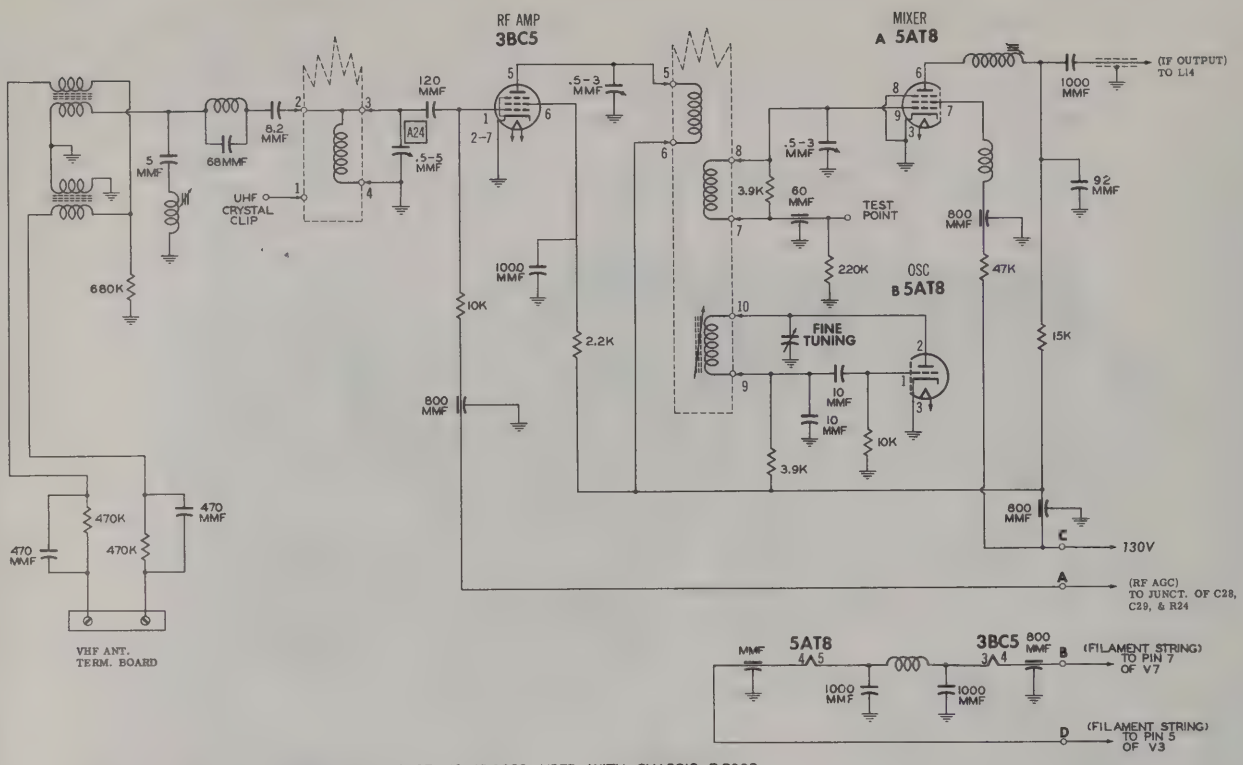
† MEASURED FROM OUTPUT OF M1.
▲ MEASURED FROM PIN 3 OF V12.
TP-TIE POINT.
NC-NO CONNECTION.



TUBE PLACEMENT CHART

PROPERTY OF
L. F. OLEMACHUP
3001 MEADE ST.
DENVER, COLORADO

CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



VHF TUNER PART NO. 1D2653 USED WITH CHASSIS B2003

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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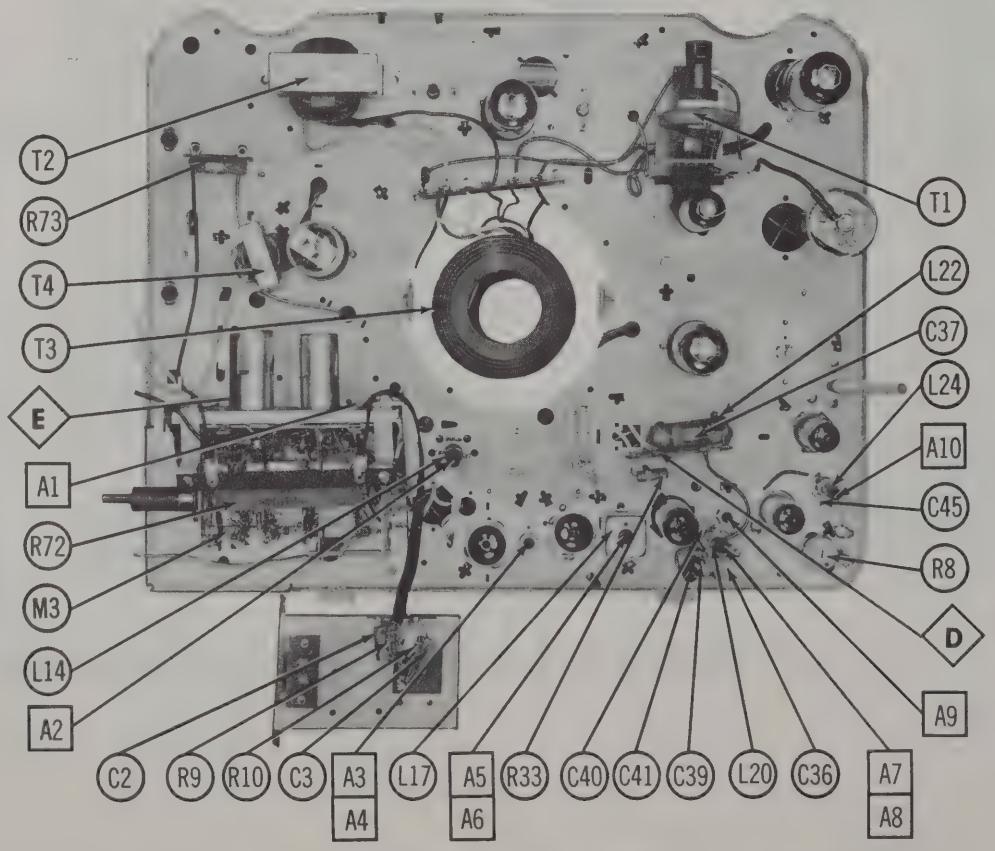
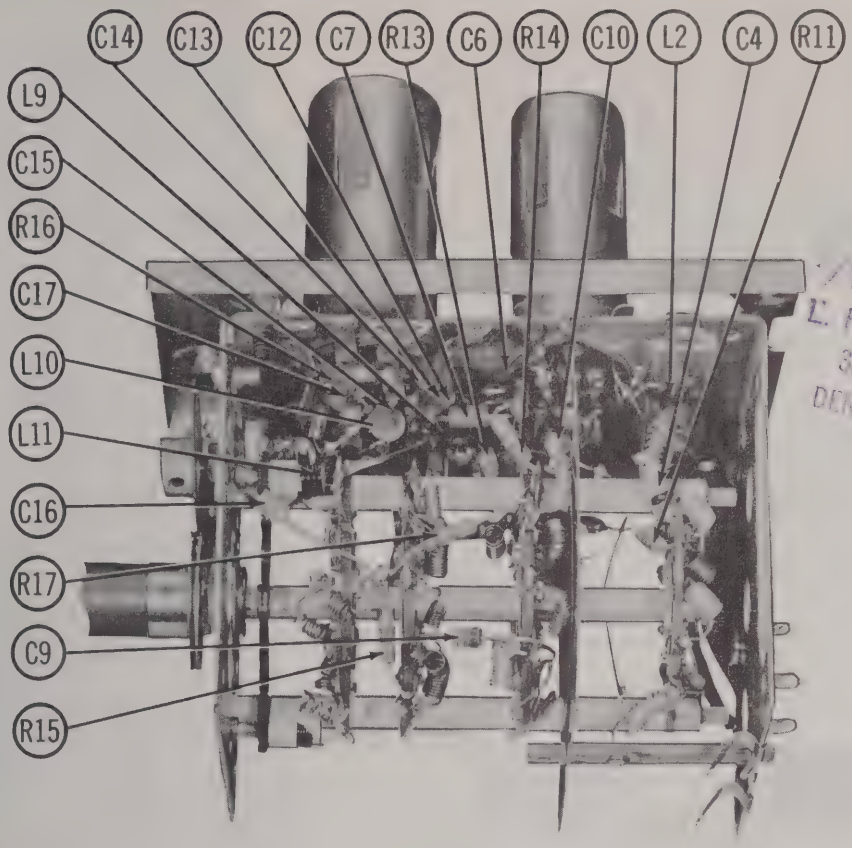
ALTERNATE TUNER SCHEMATIC

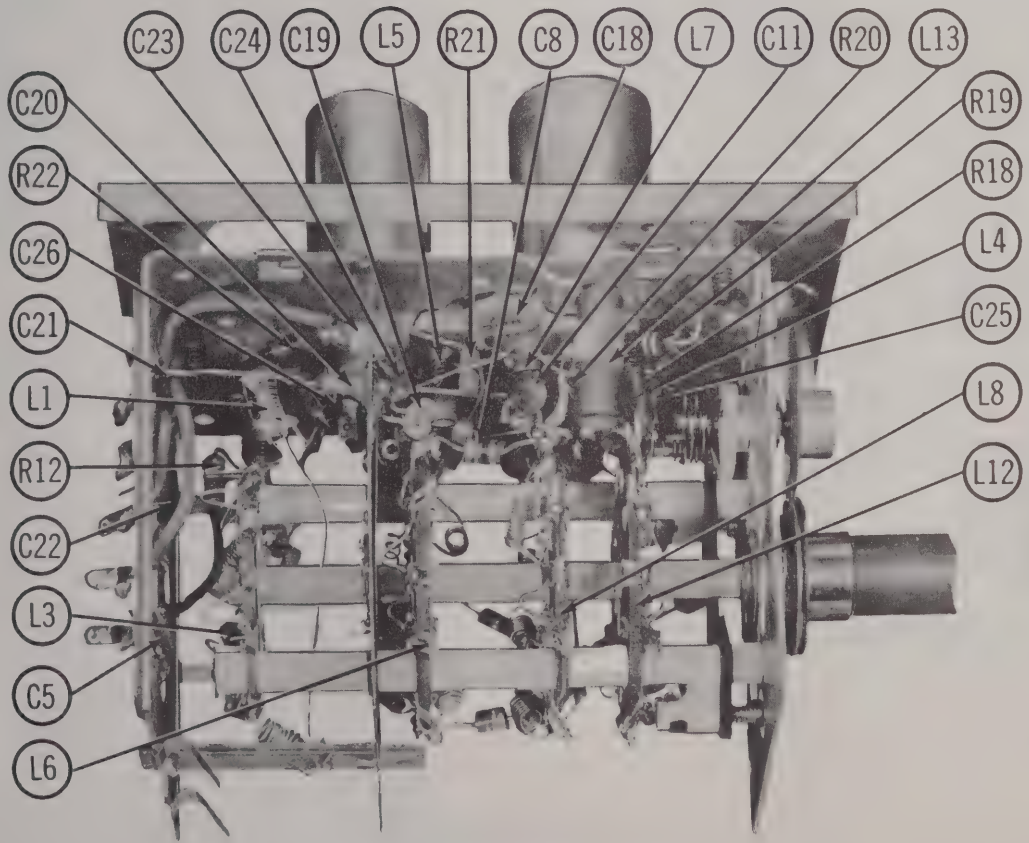


CHASSIS TOP VIEW

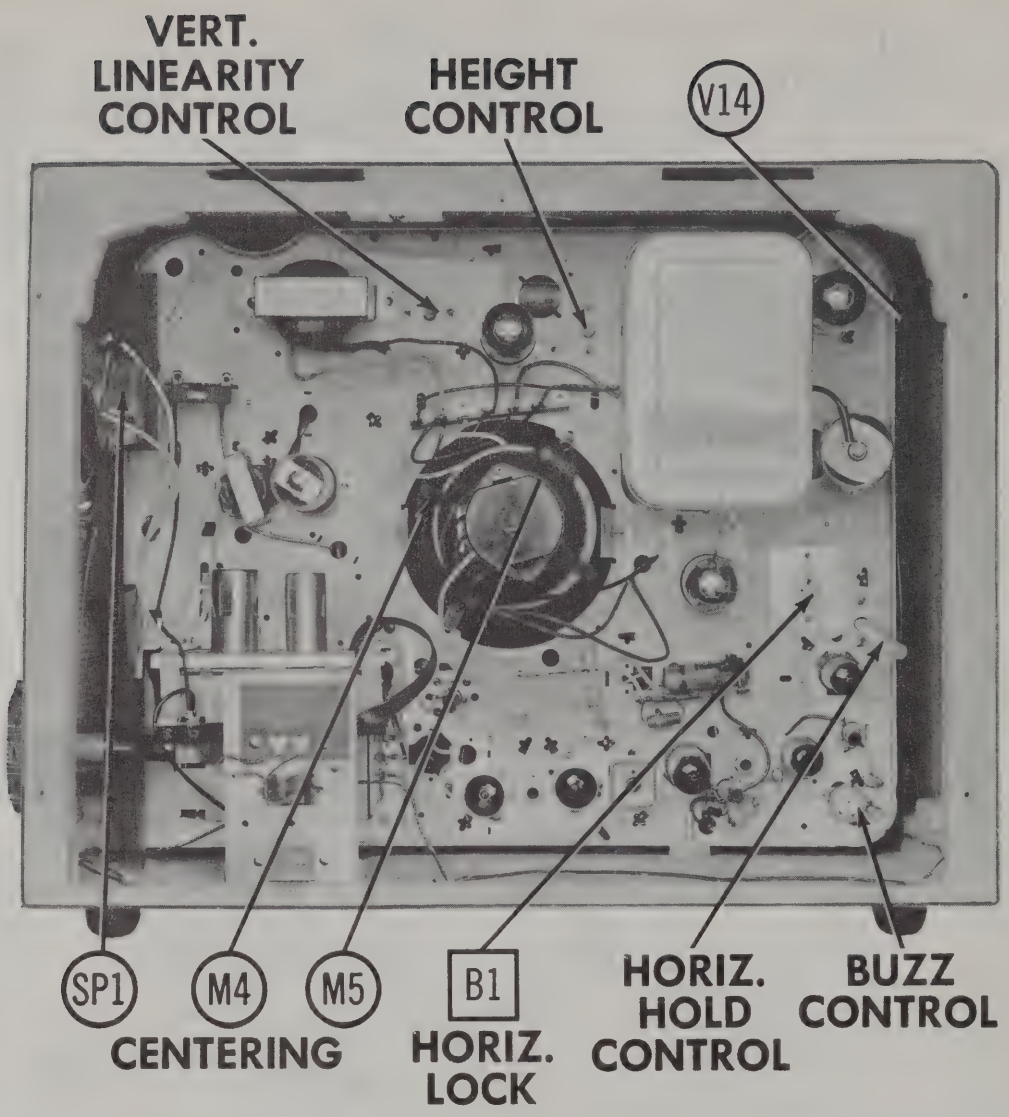


PROPERTY
L. F. GLANVEL
3591 MEADE
DENVER, COLORA

RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

If the horizontal hold controls fail to maintain sync, set it in the middle of its range and adjust the horizontal lock slug (B1) until the picture is in sync. Check other channels, and if necessary, readjust B1 slightly for best sync on all channels.

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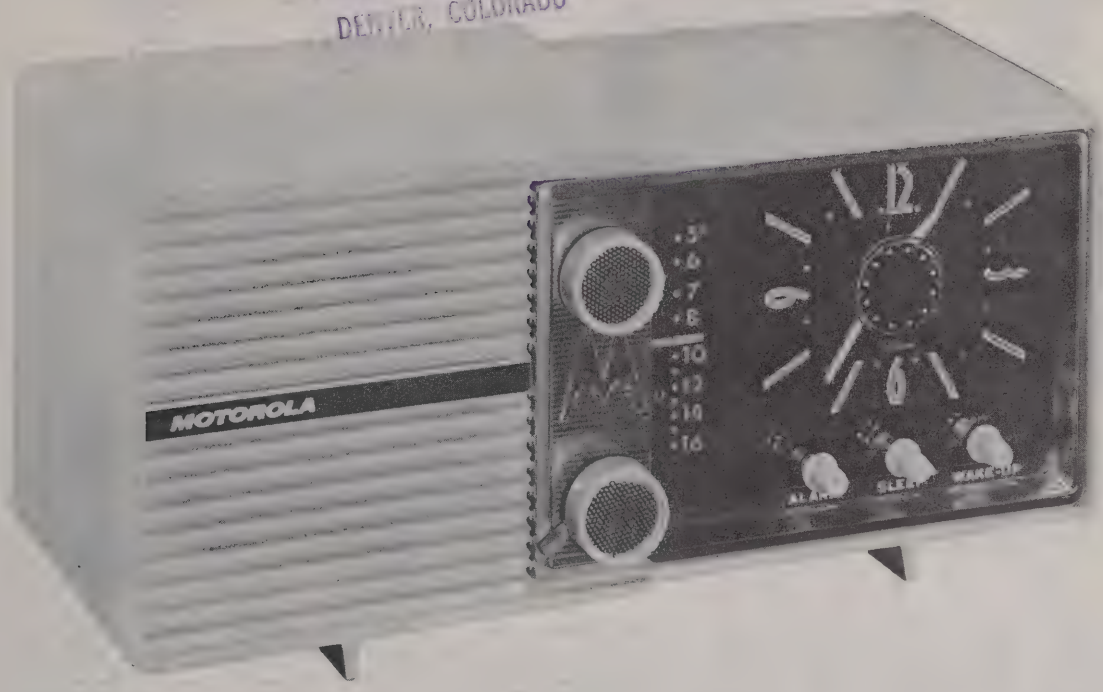
MOTOROLA MODELS 66C1, 66C2 (Ch. HS-458)

MOTOROLA MODELS
66C1, 66C2 (Ch. HS-458)



MOTOROLA MODELS
66C1, 66C2 (Ch. HS-458)

TRADE NAME	Motorola Models 66C1, 66C2 (Ch. HS-458)
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Ill.
TYPE SET	AC Operated AM Superheterodyne Receiver with Electric Clock
TUBES (Six)	Types 12BA6 RF Amplifier, 12BE6 Converter, 12BA6 IF Amplifier, 12AT6 Det.-AVC-AF Amp., 35C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycles — RATING .25 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535KC-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6. Low side to chassis.	455KC (400~ Mod.)	Tuning gang fully open	Across Voice Coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1620KC	"	"	A5	"
3.		Loop (Radiated)	1400KC	Tune to 1400KC signal	"	A6, A7	Remove dial background to adjust RF (A6) and Ant. (A7) trimmers. Adjust for maximum output.
4.		"	600KC	Tune to 600KC signal	"	A8	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
5.		"	1400KC	Tune to 1400KC signal	"	A6	Retouch RF trimmer (A6) for maximum output.

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PARTS LIST AND DESCRIPTIONS

MOTOROLA MODEL 66C1

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12BA6	
V2	Converter	12BE6	
V3	IF Amplifier	12BA6	
V4	Det. -AVC-AF Amp.	12AT6	Note 1
V5	Output	35C5	
V6	Rectifier	35W4	

Note 1. Some versions may use a 12AV6. If replacement is necessary, manufacturer recommends 12AT6 be used.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	40	150	23K634275	PRS150V4030-20	BBRT44215	TCT3116	TDLT-4	FMT-315	TVA-3451
B	30	150							
C	30	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	.05	200	8R121005	BPD-05	DF-503	CUB2S5		PT415	2TM-S5	
C3	10000		21R482726	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C4	2000		21R121106	BPD-002	DD-202	K072	801-002	DC-522	5HK-D2	
C5	.001	600	8R122103	SI1000	D6-102	CUB6D1	GP2L-102	PT621	6TM-D1	
C6	.004	600	8R121000	SI4000	D6-402	CUB6D4	GP2-333-402	PT624	6TM-D4	
C7A	5000									
B	250		♦ 51B634228	♦ PA-112-1	♦ PC-70	♦ 112TM1	♦ 1406-01		♦ T-3	
C										
C8	10000		21R482726	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C9	.047	400	8K490232	BPD-05	DF-503	CUB4S47		PT4147	4TM-S47	
C10	.1	600	8R121869	P688N-1	DF-104	CUB6P1		PT601	6TM-P1	

♦ Items C7A, C7B, C7C, R11A and R11B are combined in one unit. When replacing items separately C7B and C7C should total 250MMF.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1Meg		18B634294	F1-51			UF16L	Tone (Panel)
B	1Meg			R2-58			UR16-T254†	Volume-tapped at 270KΩ (Rear)

† Universal Replacement (Mallory Exact Duplicate Part No. UE1688).

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA MOTOROLA PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R2	68Ω		6R2039	BTS-68	
R3	22KΩ		6R6028	BTS-22K	
R4	100KΩ		6R6075	BTS-100K	
R5	2.2Meg		6R3927	BTS-2.2Meg	
R6	100Ω		6R6326	BTS-100	
R7	47KΩ		6R6056	BTS-47K	
R8	39KΩ		6R6487	BTS-39K	

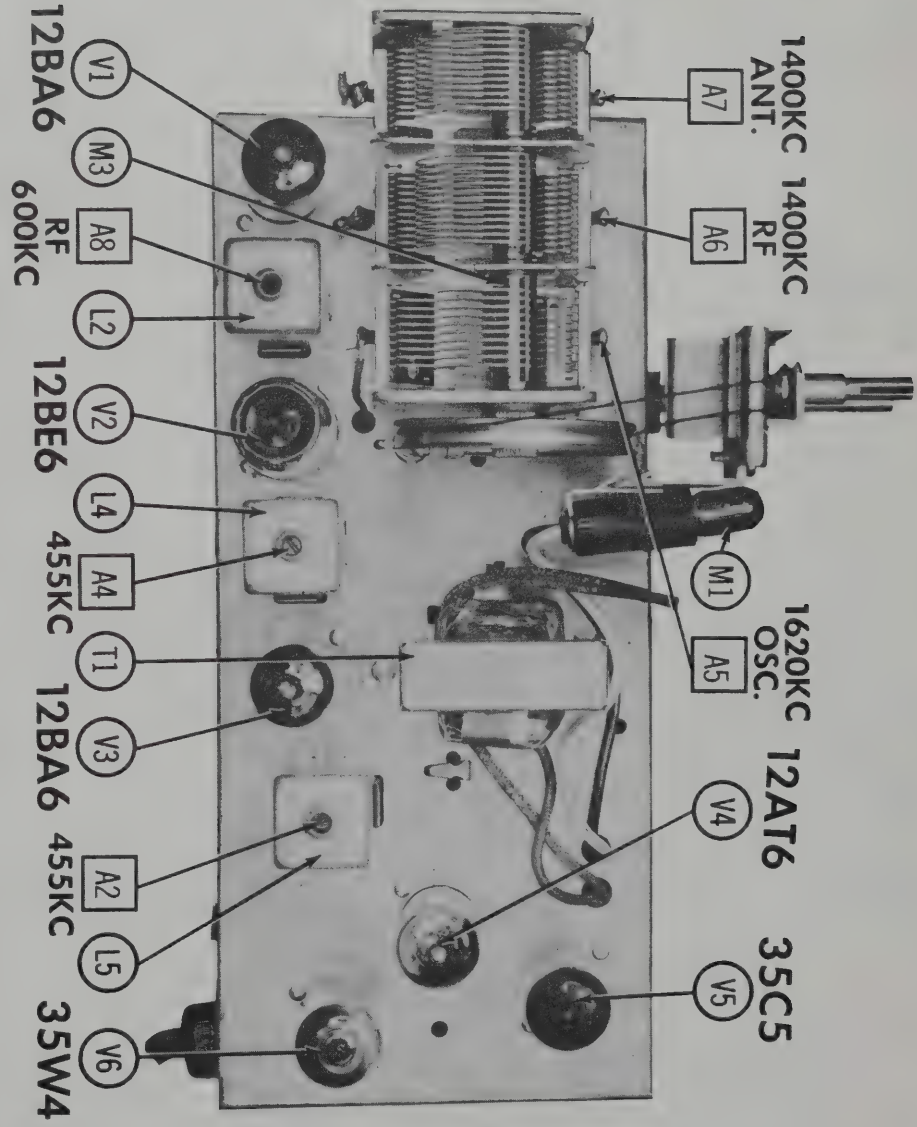
ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA MOTOROLA PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R9	47KΩ		6R6048	BTS-47K	
R10	6.8Meg		6R3987	BTS-6.8Meg	
R11A	500KΩ		♦51B634228	BTS-470K	
B	500KΩ			BTS-470K	
R12	150Ω		6R6373	BTS-150	
R13	220Ω	1	6R6173	BTA-220	
R14	680Ω	1	6R118211	BTA-680	

♦ Items R11A, R11B, C7A, C7B, C7C are combined in one unit.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	3.7KΩ	3-4Ω	25C634231	Z1001	A-2903	A-3877	22S45	S-1X	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

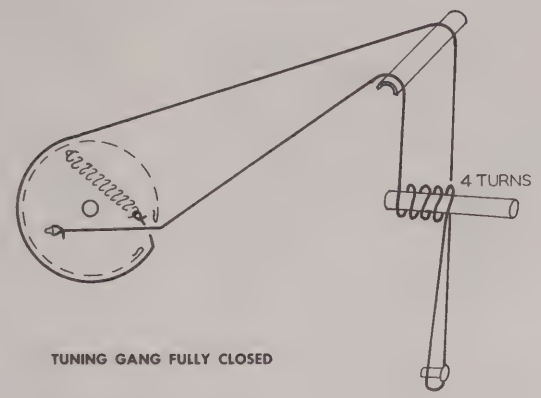
ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	RCA TYPE No.	
SP1	5"	PM	3-4Ω	50C634230	5A07	205S1	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Ant.	3.1Ω		1V635101				
L2	RF Coil	34Ω	9.5Ω	24C634251	14-1411			
L3	Osc. Coil	.9Ω	10.3Ω	24B634118			69-Osc.	
L4	Input IF	14Ω	14Ω	24C634507	16-6758	BC-352	12-C1	
L5	Output IF	13Ω	13Ω	24K634508	16-6770	BC-355	12-C6	

MISCELLANEOUS

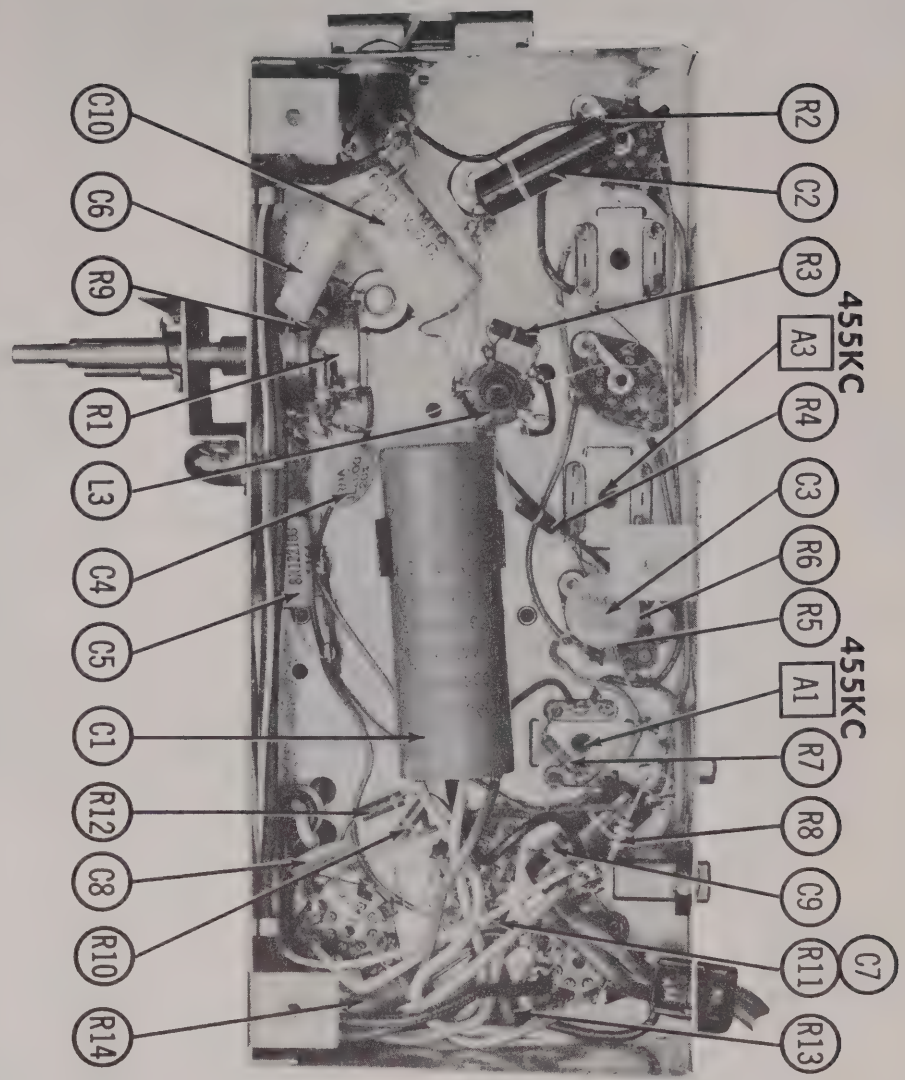
ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M1	Dial Light	65X11854	#47 (Radio)
M2	Pilot Light	65T634268	#43 (Clock Face)
M3	Tuning Cap.	19C634243	3 Gang (25-385MMF, 28-420MMF, 27-145MMF)
M4	Clock	72D634125	
	Cabinet	16E634204	Model 66C1
	Cabinet	16K634205	Model 66C2
	Knob	36C634307	Tuning & Volume, Model 66C1
	Knob	36K634308	Tuning & Volume, Model 66C2
	Knob	36K634319	Tone
	Knob	36K634306	Clock (3 used)
	Crystal	61D634229	Clock & Dial Scale
	Dial Pointer	1K634302	



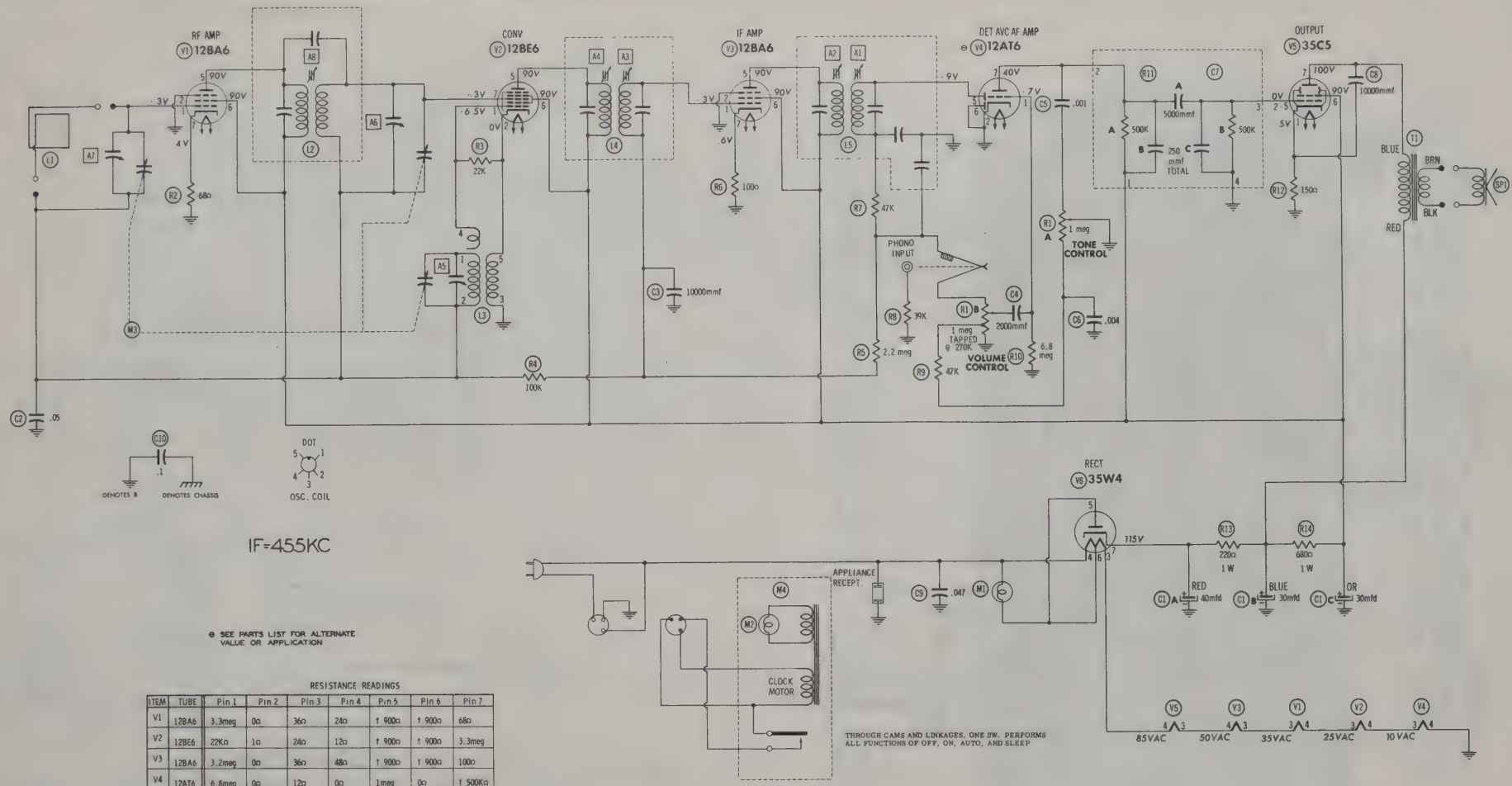
TUNING GANG FULLY CLOSED

DIAL CORD STRINGING

CHASSIS—BOTTOM VIEW



MOTOROLA MODEL 66C1



⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BA6	3.3meg	0Ω	36Ω	24Ω	↑ 900Ω	↑ 900Ω	68Ω
V2	12BE6	22KΩ	1Ω	24Ω	12Ω	↑ 900Ω	↑ 900Ω	3.3meg
V3	12BA6	3.2meg	0Ω	36Ω	48Ω	↑ 900Ω	↑ 900Ω	100Ω
V4	12AT6	6.8meg	0Ω	12Ω	0Ω	1meg	0Ω	↑ 500KΩ
V5	35C5	150Ω	500KΩ	48Ω	83Ω	500KΩ	↑ 900Ω	↑ 450Ω
V6	35W4	TP	TP	83Ω	115Ω	120Ω	120Ω	500KΩ

ALL MEASUREMENTS TAKEN WITH CLOCK DISCONNECTED.
↑ MEASURED FROM PIN 7 OF V6.
TP TIE POINT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PHOTOFACT* Folder

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RETMA MEMBER

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PHILCO MODEL 22D4150

TRADE NAME	Philco	MODELS	CHASSIS
		18D3020C, 18D3020G, 18D3020L, 18D3020M, 18D3122, 22D4029G, 22D4029L, 22D4030E, 22D4030L, 22D4032, 22D4131, 22D4131L, 22D4136, 22D4136L, 22D4136XL, 22D4136XW, 22D4138, 22D4138L, 22D4150, 22D4150L, 22D4153, 22D4153L, 22D4153X, 22D4153XL, 22D4154, 22D4158, 22D4320L, 22D4320M, 22D4320T, 22D4320W	TV-330
		18D3020UC, 18D3020UG, 18D3020UL, 18D3020UM, 18D3122U, 22D4030UE, 22D4030UL, 22D4136U, 22D4136UL, 22D4138U, 22D4138UL, 22D4150U, 22D4150UL, 22D4154U, 22D4158U	TV-330U

MANUFACTURER	Philco Corp., Tioga & "C" Streets, Philadelphia, Pa.
TYPE SET	Television Receiver
TUBES	Seventeen
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING 1.44 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

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PHILCO MODELS 18D3120C, G, L, M, UC, UG, UL, UM, 18D3122, U, 22D4029G, L, 22D4030E, L, UE, UL, 22D4032, 22D4131, L, 22D4136L, U, UL, XL, XW, 22D4138, L, U, UL, 22D4150, L, U, UL, 22D4153, L, X, XL, 22D4154, U, 22D4158, U, 22D4320L, M, T, W (Ch. TV330, U)

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MODEL
22D4150

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 2 metal screws holding plastic knob panel.
2. Remove 7 push-on type control knobs from front panel of cabinet.
3. Remove antenna plugs from antenna terminal bracket. Remove 11 wood screws. Remove rear cover.
4. Remove picture tube socket, yoke plug, HV lead and speaker plug.
5. Remove 4 chassis bolts. Remove chassis.
6. Remove 2 speaker nuts. Remove speaker.

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF tuner oscillator circuit may be accomplished by removing the channel selector and fine tuning knobs.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 4 wood screws holding metal strip at the top edge of the safety glass. Remove metal strip and safety glass. Use extreme caution when removing safety glass.

SERVICE ADJUSTMENT LOCATION

See tube placement chart on page 5.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Adjustment of the horizontal oscillator can be made from the rear panel of the chassis. Set the horizontal hold control to the center of its range and adjust the horizontal oscillator control (R9) until the picture synchronizes horizontally. If results are unsatisfactory, refer to the "Horizontal Sweep Circuit Adjustments".

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (L33) located on top of the chassis.

FUSES

One fuse is used for LV power supply protection. (For location see tube placement chart).

CENTERING

Centering is accomplished mechanically by means of a centering lever on the PM focusing assembly. Adjust the centering lever from side to side, and up and down until the picture is properly centered.

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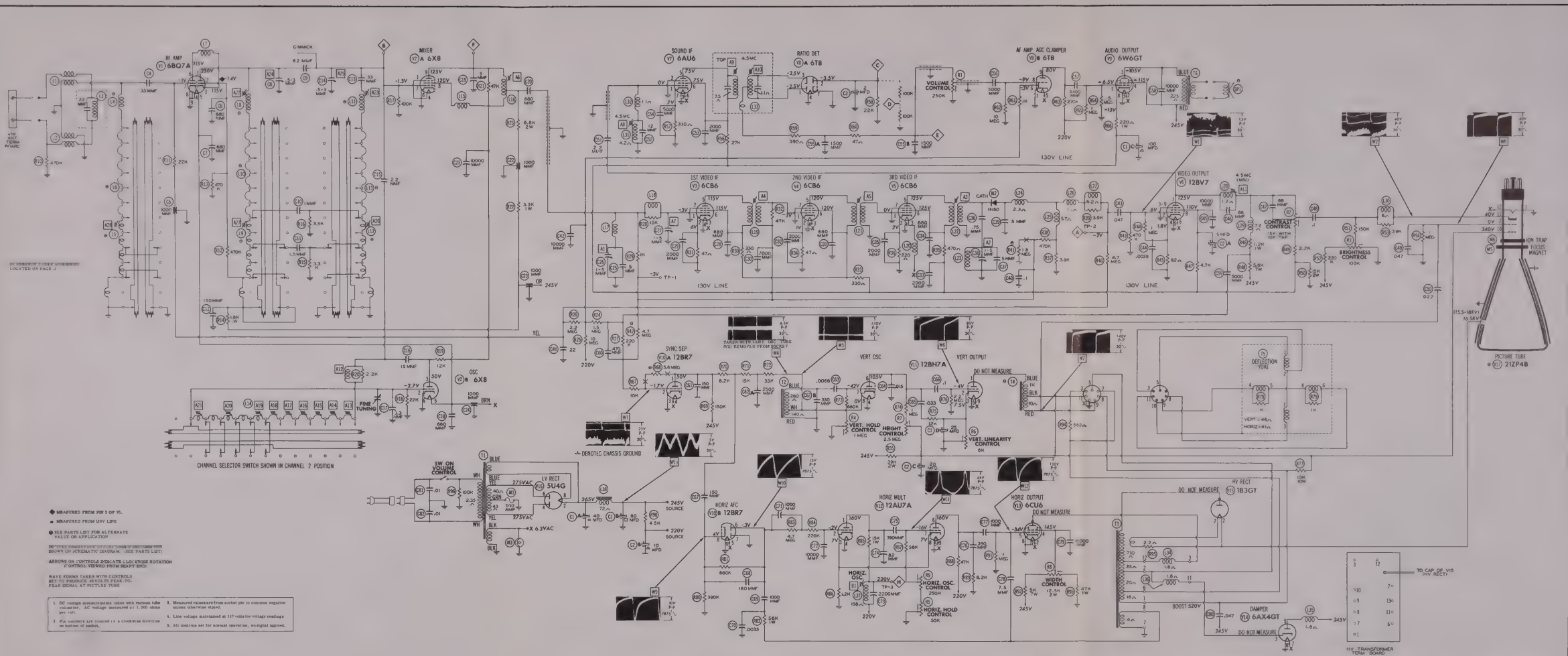
RF AMP V1 6BQ7A
MIXER V2 A 6X8
GIMMICK
SOUND IF V7 6AU6
RATIO DET V5 A 6T8
AF AMP AGC CLAMPER V8 B 6T8
AUDIO OUTPUT V5 6W6GT
VOLUME CONTROL 250K
130V LINE
1ST VIDEO IF V3 6CB6
2ND VIDEO IF V4 6CB6
3RD VIDEO IF V5 6CB6
VIDEO OUTPUT V5 12BV7
4.5MC TRAP
CONTRAST CONTROL 15K WITH TOP "AP"
BRIGHTNESS CONTROL 100K
ION TRAP FOCUS MAGNET
PICTURE TUBE V17 21ZP4B
DEFLECTION YOKE
SYNC SEP. V10 A 12BR7
VERT OSC V11 12BH7A
VERT OUTPUT
DO NOT MEASURE
VERT. HOLD CONTROL 1 MEG
HEIGHT CONTROL 2.5 MEG
VERT. LINEARITY CONTROL 6K
OSC V2 B 6X8
FINE TUNING
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 2 POSITION
SW ON VOLUME CONTROL
LV RECT 5U4G
275VAC
6.3VAC
245V SOURCE
220V SOURCE
HORIZ AFC V10 B 12BR7
HORIZ MULT 12AU7A
HORIZ OUTPUT V13 6CU6
HV RECT 1B3GT
HORIZ. OSC. CONTROL 250K
HORIZ. HOLD CONTROL 50K
WIDTH CONTROL 12.5K 2W
BOOST 520V
DAMPER V14 6AX4GT
TO CAP. OF V15 HV RECT.
HV TRANSFORMER TERM. BOARD
DENOTES CHASSIS GROUND
TAKEN WITH VERT. OSC. TUBE (V11) REMOVED FROM SOCKET
MEASURED FROM PIN 5 OF V1.
MEASURED FROM 130V LINE
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION OF CONTROL VIEWED FROM SHAFT END
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE #6 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE
1. DC voltage measurements taken with vacuum tube voltmeter. AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings
5. All controls set for normal operation, no signal applied.

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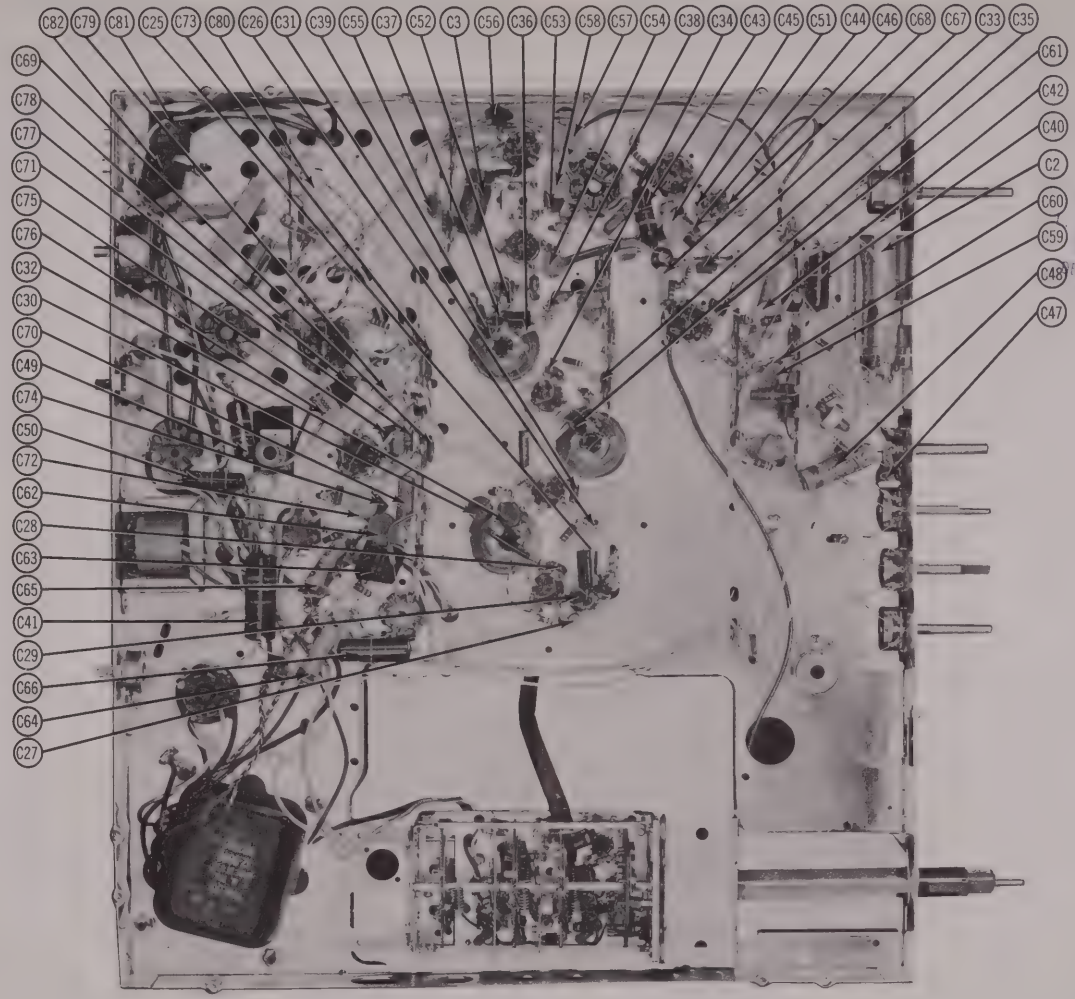
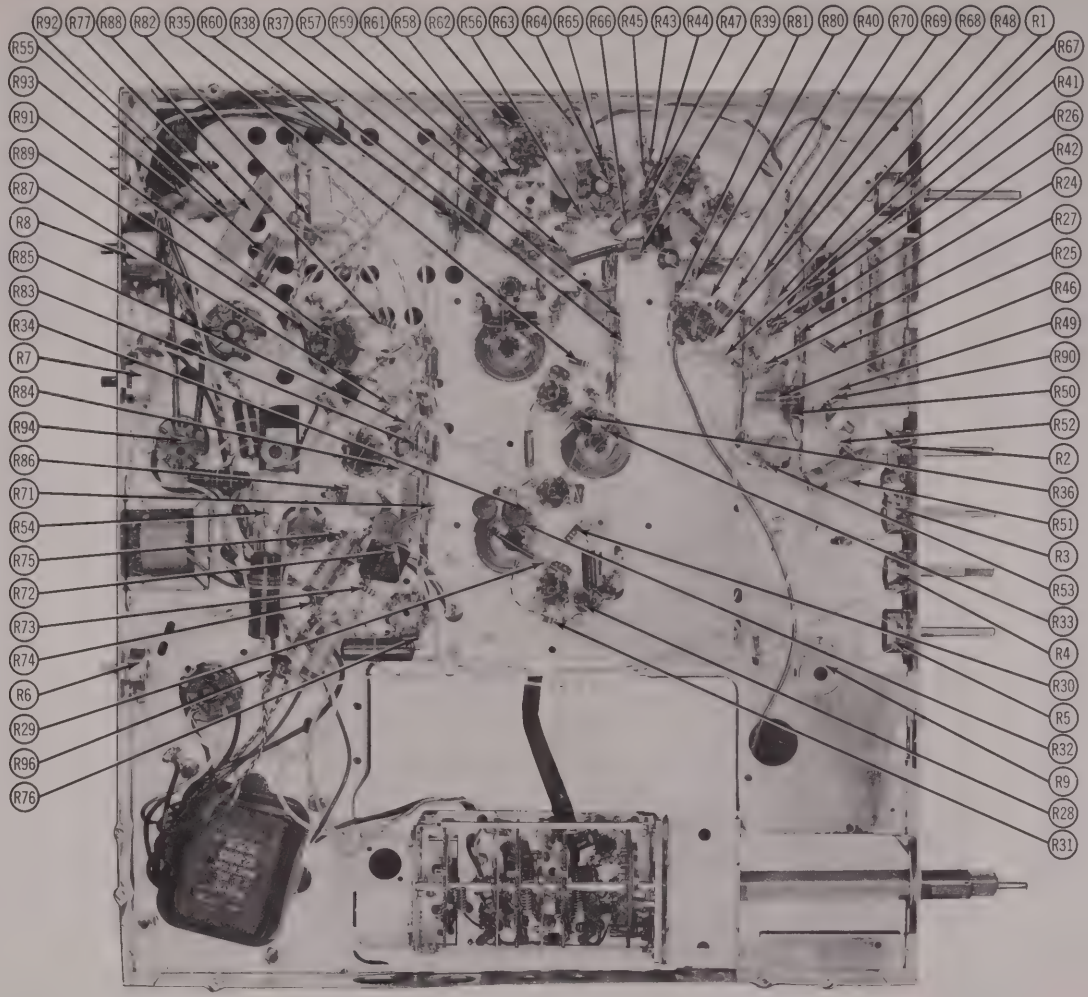
PHILCO MODELS 18D3120C, G, L, M, UC, UG, UL, UM, 18D3122, U, 22D4029G, L, 22D4030E, L, UE, UL, 22D4032, 22D4131, L, 22D4136L, U, UL, XL, XW, 22D4138, L, U, UL, 22D4150, L, U, UL, 22D4153, L, X, XL, 22D4154, U, 22D4158, U, 22D4320L, M, T, W (Ch. TV330, U)



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

PHILCO MODELS 18D3120C, G, L, M, UC, UG, UL, UM, 18D3122, U, 22D4029G, L, 22D4030E, L, UE, UL, 22D4032, 22D4131, L, 22D4136L, U, UL, XL, XW, 22D4138, L, U, UL, 22D4139G, L, U, UL, 22D4153, L, X, XL, 22D4154, U, 22D4158, U, 22D4330L, M, T, W (CH. TV330, U)

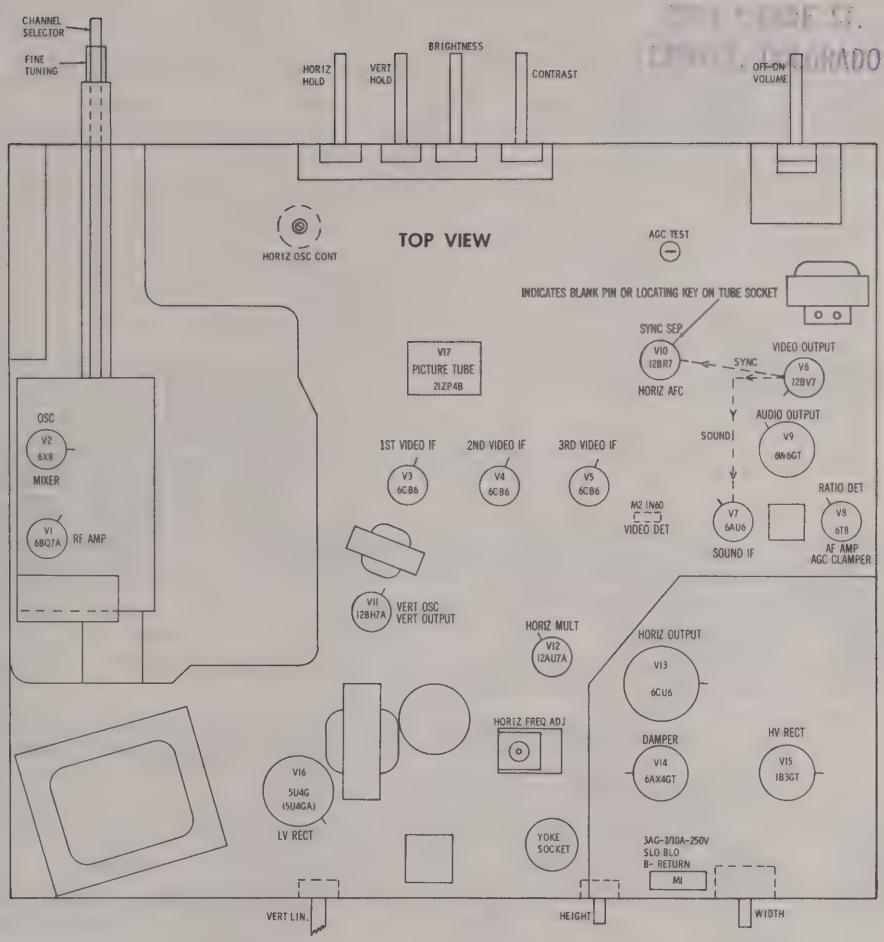


CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

PHILCO MODELS 18D3120C, G, L, M, UC, UG, UL, UM, 18D3122, U, 22D4029G, L, 22D4030E, L, UE, UL, 22D4032, 22D4131, L, 22D4136L, U, UL, XL, XW, 22D4138, L, U, UL, 22D4150, L, U, UL, 22D4153, L, X, XL, 22D4154, U, 22D4155, U, 22D4320L, M, T, W (Ch. TV330, U)

TUBE PLACEMENT CHART

PROPERTY OF
L. I. LOANERSHIP
DENVER, COLORADO



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - V16, fuse (M1)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V2, V3, V4, V5, V6, V9
No pic, no sound, has snow - V1, V2, V3
No pic, has sound, has raster - V6, V17
Has pic, no sound - V7, V8, V9
Overloaded picture - V8

SYNC FAILURE
No vert. sync - V10, V11
No horiz. sync - V10, V12
No vert. or horiz. sync - V10

SWEEP FAILURE
No raster, has sound - V12, V13, V14, V15, V17
No vertical deflection - V11
Poor vert. linearity or foldover - V11
Poor horiz. linearity or foldover - V12, V13, V14
Narrow picture - V12, V13, V14, V15, V16
Vert. off freq. - V10, V11
Horiz. off freq. - V10, V12

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Allow 15 minutes for test equipment and receiver to warm up. There should be a good bond between receiver and test equipment.
Connect the deflection yoke and speaker during alignment.
Do not remove the horizontal oscillator tube (V13) to disable the high voltage. The high voltage lead should be securely taped away from the chassis. The LF shield must be in place.

VIDEO IF ALIGNMENT

Set contrast control fully clockwise.
Connect the negative lead of a 5 volt bias supply to the ungrounded side of C40. Connect the positive lead to chassis
Adjust the output of the generator during alignment to keep the peak to peak signal at point (A) below 4 volts
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side of marker generator to point (A). Low side to chassis.	Not used	47.25MC (400% 20% Mod.)	4	Vert. amp. thru 15KΩ to point (A). Low side to chassis.	A1, A3	Adjust for MINIMUM 400% indication on scope.
2.	"	"	"	44.4MC	"	"	A3	Adjust for maximum 400% indication on scope.
3.	"	"	"	43.1MC	"	"	A4	"
4.	"	"	"	45.0MC	"	"	A5	"
5.	"	"	"	45.5MC	"	"	A6	"
6.	"	"	"	42.7MC	"	"	A7	"
7.	Fig. 1	Across antenna input terminals thru matching network. (Fig. 1).	89MC (6MC Swp.)	87.25MC 70.25MC	"	"		Set fine tuning control at its mid-range position. Check response curve against Fig. 2 for curve limits. If necessary, readjust A5 thru A7 for response curve limits as in Fig. 2. Adjust A6for proper curve level. Adjust A3 to level curve top. Adjust A7 for proper slope of curve on low frequency side. Readjust adjustments only SLIGHTLY. If unable to obtain proper response curve, repeat step 3 thru 7. Do not reset A1 or A2.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (+ 1%) resistors in series from point (C) to chassis. The junction of these two resistors is alignment point (B) as shown on the schematic.
Remove 6CB6 (V3, 1st video IF tube) from its socket. Set volume control for normal volume.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8.	22000 Carbon Resistor	High side to point (A). Low side to chassis.	4.5MC (Unmod.)	Any	DC probe to point (C). Common to chassis.	A8, A9	Adjust for maximum deflection.
9.	"	"	"	"	DC probe to point (B). Common to point (C).	A10	Adjust for zero reading. A positive and negative reading will be obtained on either side of correct setting. Replace V3 in its socket.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Remove 6CB6 (V3, 1st video IF tube) from its socket.
Use frequency modulated signal with 80% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	22000 Carbon Resistor	High side to point (A). Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. amp. to point (A). Low side to chassis.	A8, A9	Disconnect stabilizing capacitor C3. Increase generator output for reading on scope. Adjust for curve of maximum amplitude and symmetry similar to Fig. 5.
9.	"	"	"	"	"	Vert. amp. to point (B). Low side to chassis.	A10	Reconnect C3. Increase generator output for reading on scope. Adjust so that 4.5MC occurs at crossover lines as in Fig. 4. SLIGHTLY readjust A9 for maximum amplitude and straightness of crossover lines. Replace V3 in its socket.

4.5MC TRAP ALIGNMENT

Set contrast control at maximum position

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10.	22000 Carbon Resistor	High side to point (A). Low side to chassis.	4.5MC (Unmod.)	Any	DC probe to pin 11 (cathode) of picture tube. Common to chassis.	A11	Remove V3 from its socket. Adjust for MINIMUM deflection. Replace V3 in its socket.

OSCILLATOR ALIGNMENT FOR TUNER 76-9182-3

Disconnect white wire going to tuner AGC from main chassis. Connect negative lead of 1.5 volt bias battery to the loose end on the tuner. Connect positive lead to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	Not used	257MC	13	Vert. amp. thru 1KΩ to point (A). Low side to chassis.	A13	Adjust for zero beat on scope. If regeneration occurs, increase bias to 3 volts if necessary. Recheck channels 13 thru 7 and readjust until channels are within 500KC of their proper frequencies.
				255MC	12		A13	
				241MC	11		A14	
				239MC	10		A15	
				233MC	9		A16	
				227MC	8		A17	
				221MC	7		A18	
12.	"	"	"	129MC	6	"	A19	Adjust for zero beat on scope.
				113MC	4		A20	
				101MC	2		A21	

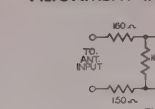


FIG. 1

FIG. 2

FIG. 3

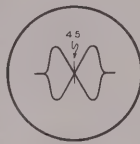
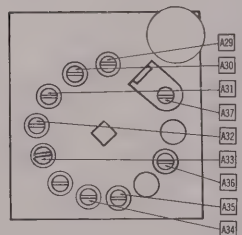


FIG. 4

FIG. 5

FIG. 6A

FIG. 6B



RF AND MIXER ALIGNMENT FOR TUNER 76-9182-5

Connect bias as under "Oscillator Alignment". Disconnect tuner coupling link at the LF terminal strip near V3 and solder a 68Ω resistor across the lead from the tuner. Remove V3 from its socket. Adjust scope controls so that the width is double the height.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13.	Fig. 1	Across antenna terminals thru antenna matching network (Fig. 1).	213.MC (10MC Swp)	213MC	13	Vert. amp. thru 1KΩ to point (A). Low side to chassis.	A22, A23	Check for response similar to Fig. 5. If response is not flat between limits shown, adjust A22 and A23 alternately to produce a symmetrical response about 213MC marker. A23 sets the carrier level, A22 is adjusted for proper tilt.
14.	"	"	177MC (10MC Swp.)	177MC	7	"	A24, A25	Check for response indicated by dotted lines in Fig. 6A and 6B. If necessary, adjust mirror image of response curve (tilt in opposite direction). If response curve appears as in Fig. 6A, adjust A24 and A25 until curve appears as in Fig. 6B. This adjustment overcompensates to allow for channel 13 adjustment. Repeat steps 13 and 14 until centered and symmetrical response are obtained on channels 7 and 13.
15.	"	"	88MC (10MC Swp.)	88MC	5	"	A26, A27, A28	Adjust for symmetrical response centered in pass band. Adjust A26 counter clockwise until single peak appears. Adjust A27 until peak falls on 88MC marker. Adjust A28 for max. amplitude and symmetry of single peak. Retouch SLIGHTLY if necessary A26 and A27 for symmetrical response centered at approx the 88MC marker point similar to Fig. 5.

PROPERTY OF L. F. [illegible] SHOP

OSCILLATOR ALIGNMENT FOR TUNER 76-8946-10

Disconnect white wire going to tuner AGC from main chassis. Connect negative lead of 1.5 volt bias battery to the loose end on the tuner.
Connect positive lead to chassis.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
16.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	Not used	257MC	13	Vert. amp. thru 1KΩ to point (A). Low side to chassis.	A29	Adjust for zero beat on scope. If regeneration occurs, increase bias to 3 volts if necessary. Recheck channels 13 thru 7 and readjust until channels are within 500KC of their proper frequencies.
				241MC	12		A30	
				215MC	11		A31	
				209MC	10		A32	
				203MC	9		A33	
				197MC	7		A34	
17.	"	"	"	129MC	6	"	A35	Adjust for zero beat on scope.
				113MC	4		A36	
				101MC	2		A37	

RF AND MIXER ALIGNMENT FOR TUNER 76-8946-10

Connect bias as under "OSCILLATOR ALIGNMENT". Disconnect tuner coupling link at the video IF terminal strip near V3 and solder a 68 ohm resistor across the lead from the tuner. Remove V3 from its socket. Adjust scope controls so that the width is twice the height.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

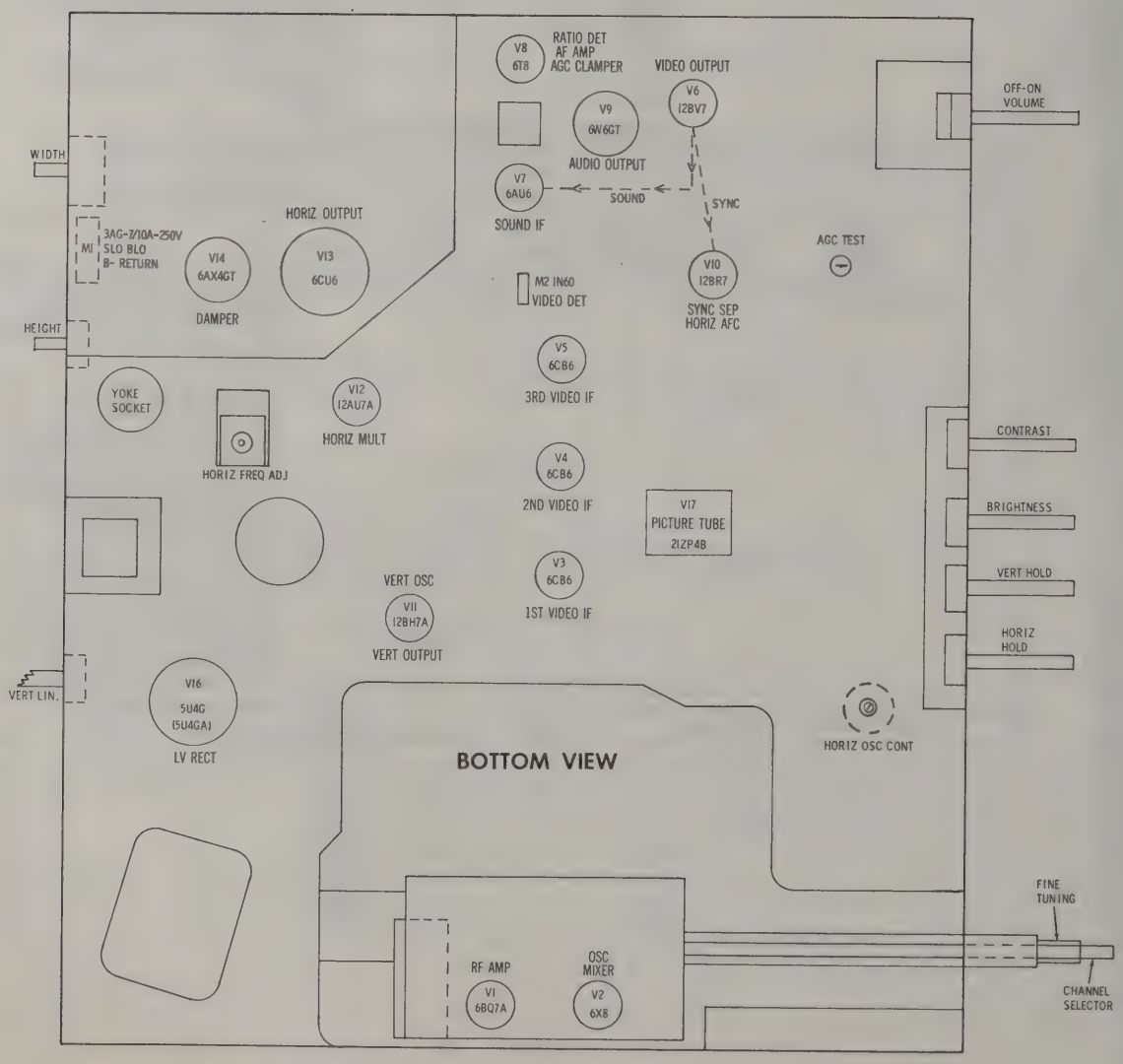
	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
18.	Fig. 1	Across antenna terminals thru antenna matching network (Fig. 1).	213MC (10MC Swp.)	213MC	13	Vert. amp. thru 1KΩ to point (A). Low side to chassis.	A38, A39	Check for response similar to Fig. 5. If response is not flat between limits shown, adjust A38 and A39 alternately to produce a symmetrical response about 213MC. A38 sets the carrier level and A39 is adjusted for proper tilt.
19.	"	"	177MC (10MC Swp.)	177MC	7	"	A40, A41	Check for response indicated by dotted lines in Fig. 6A and 6B. If necessary, adjust mirror image of response curve, (tilt in opposite direction). If the response appears as in Fig. 6A, adjust A40 and A41 until curve appears as Fig. 6B. This adjustment overcompensates to allow for channel 13 adjustment. Repeat steps 18 and 19 until centered and symmetrical response curves are obtained on channel 7 and 13.
20.	"	"	85MC (10MC Swp.)	85MC	6	"	A42, A43, A44	Adjust for symmetrical response curve centered in pass band. Adjust A42 counter clockwise until single peak appears. Adjust A43 until peak falls on 85MC marker. Adjust A44 for maximum amplitude and symmetry of single peak. Retouch SLIGHTLY if necessary, A42 and A43 for symmetrical response centered at approximately the 85MC marker point similar to Fig. 5.
21.	Direct	High side to point (A). Low side to chassis.	43.5MC (10MC Swp.)	43.5MC	UHF	"		Adjust for a flat response.

PHILCO MODELS 1803120C, G, L, M, UC, UG, UL, UM, 1803122, U, 22D4029D, L, 22D4030E, L, UE, UL, 22D4032, 22D4131, L, 22D4134A, U, UL, XL, XW, 22D4138, L, U, UL, 22D4140, L, U, UL, 22D4153, L, XL, XU, 22D4154, U, 22D4158, U, 22D4320L, M, T, W (Ch. TV330, U)

RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BQ7A	† 1.8KΩ	220KΩ	INF	0Ω	.1Ω	INF	2.5Meg	0Ω	0Ω
V 2	6X8	0Ω	22KΩ	† 22KΩ	0Ω	.1Ω	0Ω	100KΩ	† 9KΩ	† 9KΩ
V 3	6CB6	320KΩ	47Ω	.1Ω	0Ω	■ 660Ω	■ 660Ω	0Ω		
V 4	6CB6	320KΩ	47Ω	.1Ω	0Ω	■ 330Ω	■ 330Ω	0Ω		
V 5	6CB6	.1Ω	220Ω	.1Ω	0Ω	■ 470Ω	■ 470Ω	0Ω		
V 6	12BV7	82Ω	300KΩ	0Ω	0Ω	0Ω	.1Ω	† 6KΩ	■ 4.7KΩ	0Ω
V 7	6AU6	5.3Ω	0Ω	0Ω	.1Ω	■ 27KΩ	■ 27KΩ	330Ω		
V 8	6T8	250KΩ	22KΩ	250KΩ	0Ω	.1Ω	2Meg	0Ω	10Meg	† 270KΩ
V 9	6W6GT	TP	.1Ω	† 300Ω	† 72Ω	550KΩ	TP	0Ω	10KΩ	
V 10	12BR7	† 50KΩ	1.5Meg	0Ω	.1Ω	.1Ω	1Meg	0Ω	390KΩ	0Ω
V 11	12BH7A	◓ 11KΩ	2.2Meg	400Ω	0Ω	0Ω	◓ 2.2Meg	1Meg	140Ω	.1Ω
V 12	12AU7A	† 20KΩ	6Meg	1.2KΩ	0Ω	0Ω	† 50KΩ	130KΩ	1.2KΩ	.1Ω
V 13	6CU6	TP	.1Ω	NC	† 4.6KΩ	1Meg	TP	0Ω	0Ω	TOP CAP ◓ 27Ω
V 14	6AX4GT	NC	NC	60KΩ	TP	† 75Ω	NC	.1Ω	0Ω	
V 15	1B3GT		PINS	1-8	HAVE	INF	RESISTANCE			TOP CAP ◓ 760Ω
V 16	5U4G	NC	17KΩ	NC	43Ω	NC	40Ω	NC	17KΩ	
V 17	21ZP4B	0Ω	1Meg	PIN 10 ◓ 10KΩ	PIN 11 † 170KΩ	PIN 12 .1Ω				

† MEASURED FROM PIN 2 OF V16.
■ MEASURED FROM 130V LINE.
◓ MEASURED FROM PIN 3 OF V14.
TP-TIE POINT.
NC-NO CONNECTION.



TUBE PLACEMENT CHART

ALTERNATE TUNER SCHEMATIC
PHILCO MODELS 18D3120C, G, L, M, UC, UG, UL, UM, 18D3122, U, 22D4029G, L, 22D4030E, L, UE, UL, 22D4032, 22D4131, L, 22D4136L, U, UL, XL, XW, 22D4138, L, U, UL, 22D4150, L, U, UL, 22D4153, L, X, XL, 22D4154, U, 22D4158, U, 22D4320L, M, T, W (Ch. TV330, U)
VHF TUNER T-36D USED WITH CHASSIS TV-330U
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 2 POSITION
MIXER A 6X8
RF AMP 6BQ7A
OSC B 6X8
FINE TUNING
UHF POWER SOCKET
UHF INPUT
VHF ANT. TERM. BOARD
(IF OUTPUT) TO JUNCT. OF R28, R29 & L18
(RF AGC TO JUNCT. OF R26 & C41
PROPERTY OF
F BLANKENSHIP
3624 MIRADE ST.
DENVER, COLORADO
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	6BQ7A	
V2	Osc.-Mixer	6X8	
V3	1st. Video IF Amplifier	6CB6	
V4	2nd. Video IF Amplifier	6CB6	
V5	3rd. Video IF Amplifier	6CB6	
V6	Video Output	12BH7	
V7	Sound IF Amplifier	6AU6	
V8	Ratio Det.-AF Amplifier-AGC Clamper	6T8	

ITEM No.	USE	TYPE	NOTES
V9	Audio Output	6W6GT	
V10	Sync Separator-Horiz. AFC	12BR7	
V11	Vert. Osc.-Vert. Output	12BH7A	
V12	Horiz. Mult.	12AU7A	
V13	Horiz. Output	6CU8	
V14	Damper	6AX4GT	
V15	HV Rectifier	1B3GT	
V16	LV Rectifier	5U4G	Note 1

Note 1. 5U4GA used in some versions.

PICTURE TUBE

ITEM No.	REPLACEMENT DATA: PHILCO Part No.	CBS Part No.	GENERAL ELECTRIC Part No.	SYLVANIA Part No.	NOTES
V17	21CP4B	21ZP4B ①	21CP4B ①	21ZP4B ② ③	① Aluminized
		21ZP4A ①	21CP4A ①	21ZP4A ② ③	② Silver screen "88"
		21ZP4	21CP4	21ZP4	
	17BP4A	17BP4A	17BP4A	17BP4A	
		17BP4B ①	17BP4B ①	17BP4B ③	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP.	VOLT.	REPLACEMENT DATA: PHILCO Part No.	AEROVOX Part No.	CORNELL-DUBILIER Part No.	MALLORY Part No.	PYRAMID Part No.	SANGAMO Part No.	SPRAGUE Part No.
C1A	40	300	30-3584-47	X4D787		FP430-45	TM-4U8	Q-351	R-3043
B	80	350						MT-25100	
C	100	200							
D	25	50							
C2A	5	150	30-3584-50	G3C566		FP259	TM-3140	T-920	R2043
B	10	350				TC40		MT-4610	
C	20	475							
C3	3	50	45-3035-4	SRE50V3	BBR2-50T	TC303	TD-3-50	MMT-0505	TVA-1201

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	VOLT.	REPLACEMENT DATA: PHILCO Part No.	AEROVOX Part No.	CENTRALAB Part No.	CORNELL-DUBILIER Part No.	ERIE Part No.	MALLORY Part No.	SPRAGUE Part No.	NOTES
C4	33		63-033490011	S133	D6-330	TP37	GP1K-330	UC-5433	5GA-Q33	
C5	1000		63-102490011							
C6	680		63-168001011	S1680	D6-681	TP50	GP2K-681	UC-5368	5GA-T68	
C7	680		63-168001011	S1680	D6-681	TP50	GP2K-681	UC-5368	5GA-T68	
C8	.5-3		31-6530-3		529-3		315-01-0R5	C7565A		
C9	.65		30-1253-1							
C10	1		30-1231-1	NP0-S11	TCZ-1	TZ03	NP0A-010		5TCCB-V1	
C11	1.5		30-1231-3	NP0-S11.5	TCZ-1R5	TZ04	NP0A-1R5	ZT-5515	5TCCB-V15	
C12	150		30-1238-9	D1-00015	D6-151	G046	811-151	UC-5315	5GA-T15	
C13	33		63-033490011	S133	D6-330	TP37	GP1K-330	UC-5433	5GA-Q33	
C14	.5-3		31-6530-3		529-3		315-01-0R5	C7565A		
C15	3.3		30-1231-6							
C16	15		30-1234-115		TCL-15					
C17	3.3		30-1234-1R4		TCN-3R3		N750A-3R3			
C18	680		63-168001011	S1680	D6-681	TP50	GP2K-681	UC-5368	5GA-T68	
C19	5		30-1234-39	S15	D6-050	TP08	GP1K-050	ZT-555	5GA-V5	
C20	680		63-168001011	S1680	D6-681	TP50	GP2K-681	UC-5368	5GA-T68	
C21	10000		30-1238-3	BPD-01	DD-103	TZ03	S11-01	DC-511	5SK-S1	
C22	1000		30-1245-6							
C23	1000		30-1245-6							
C24	1000		30-1245-6							
C25	5		30-1234-39	DI-000005	DD-050	G011	GP1K-050	ZT-555	5GA-V5	
C26	1-5		31-6530-9		529-5					
C27	1-5		31-6530-9		529-5					
C28	680		63-168001011	S1680	D6-681	TP50	GP2K-681	UC-5368	5GA-T68	
C29	3000		30-1238-13	BPD-002	DD-302	K072	801-002	DC-522	5HK-D2	
C30	3000		30-1238-13	BPD-002	DD-302	K072	801-002	DC-522	5HK-D2	
C31	680		63-168001011	S1680	D6-681	TP50	GP2K-681	UC-5368	5GA-T68	
C32	2000		30-1238-12	BPD-002	DD-202	K072	801-002	DC-522	5HK-D2	
C33	3000		30-1238-13	BPD-002	DD-302	K072	801-002	DC-522	5HK-D2	
C34	680		63-168001011	S1680	D6-681	TP50	GP2K-681	UC-5368	5GA-T68	
C35	2000		30-1238-12	BPD-002	DD-202	K072	801-002	DC-522	5HK-D2	
C36	.75		30-1234-108					ZT-5675		
C37	5		30-1234-39	DI-000005	DD-050	G011	GP1K-050	ZT-555	5GA-V5	
C38	1-5		31-6530-9		529-5					
C39	5		30-1234-39	DI-000005	DD-050	G011	GP1K-050	ZT-555	5GA-V5	
C40	.1	300	30-4650-47	P2S8N-1	DF-104	CUS2P1		PT401	2TM-P1	
C41	.33	200	30-4650-49	P2S8N-33		CUD4S33		PT403	2TM-P33	
C42	10000		30-1238-3	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C43	.047	200	30-4650-45	BPD-05	DF-503	CUB2S47		PT401	2TM-S47	
C44	.0039	300	30-4651-1	1464-0039		1S5D39		MC3643	MS-339	
C45	10000		30-1238-3	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C46	68		63-068490011	S168	D6-680	TP33	GP1K-680	UC-5468	5GA-Q68	
C47	68		63-068490011	S168	D6-680	TP33	GP1K-680	UC-5468	5GA-Q68	
C48	.1	400	30-4650-47	P4S8N-1	DF-104	CUP4P1		PT601	4TM-P1	
C49	.047	400	30-4650-45	BPD-05	DF-503	CUB4S47		PT4147	4TM-S47	
C50	.033	400	30-4650-43	BPD-03	DD-303	CUB4S33	817-03	PT4133	4TM-S33	
C51	3.3		30-1231-6	NP0A-3R3	TCZ-3R3	TZ05	NP0A-3R3		5TCCB-V33	
C52	15		63-150490001	S113	D6-150	TP10	GP1K-150	UC-5413	5GA-Q13	
C53	3000		30-1238-13	BPD-002	DD-302	K072	801-002	DC-522	5HK-D2	
C54	3000		30-1238-13	BPD-002	DD-302	K072	801-002	DC-522	5HK-D2	
C55	5000		30-1235-1	BPD-005	DD-501	K080	811-005	DC-525	5HK-D5	
C55A	1500		30-1239-3	BPD-EX0018	DD2-152	DK0T1	813-0015	DCD-5215	5HK-ED15	
B	1500									
C56	5000		30-1238-1	BPD-005	DD-502	K080	811-005	DC-525	5HK-D6	
C57	3300		30-1238-17	BPD-0033	DD-332	K077	811-0033	UC-5333	5HK-D33	
C58	10000		30-1238-3	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C59	5000		30-1238-1	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C60	470		63-147490011	S147	D6-471	TP45	GP2K-471	UC-5347	5GA-T47	
C61	150		63-115001001	S1150	D6-151	TP36	GP2K-151	UC-5315	5GA-T15	
C62A	2500		30-1239-9	BPD-0025	D6-252	K076	GP3-233-252	UC-5235	5HK-D25	
B	2500			BPD-00053	DD-383	TP45	811-321	UC-5339	5GA-T33	
C63	.0068	400	30-4650-57	S15800	D6-682	CUB6D68	GP3-333-682		6TM-D68	
C64	.015	400	30-4650-42							
C65	.033	400	30-4650-44							
C66	.1	400	30-4650-47	P4S8-1	DF-104	CUB4P1		PT401	4TM-P1	
C67	150		63-115001001	S1150	D6-151	TP36	GP2K-151	UC-5315	5GA-T15	
C68	180	500	30-1218-17	1459-00018	D6-181	2ZR5T18	811-181	MC3237	MS-318	
C69	1000		30-1235-5	BPD-001	DD-102	K069	801-001	DC-511	5HK-D1	
C70	.0033	400	30-4650-55	BPD-0033	DD-332	CUB6D33	5U-0033	PT6233	6TM-D33	
C71	1000		30-1238-5	DI-001	DD-102	K069	811-101	UC-511	5GA-D1	

CAPACITORS (cont)

ITEM No.	RATING: CAP.	VOLT.	REPLACEMENT DATA: PHILCO Part No.	AEROVOX Part No.	CENTRALAB Part No.	CORNELL-DUBILIER Part No.	ERIE Part No.	MALLORY Part No.	SPRAGUE Part No.	NOTES
C72	10000		30-1238-3	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C73	2200		30-3225434	1464-0022		1S5D22			MS-322	
C74	82		30-0082A437	1459-00083	D6-820	2ZR3T	801-820		MS-482	
C75	390		30-1039541T	1459-00039	D6-391	5R5T39	811-391	MC3243	MS-339	
C76	390	500	30-1039A43T	1459-00039	D6-391	5R5T39	811-391	MC3243	MS-339	
C77	1000		30-1238-3	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C78	7.5		30-1224-153							
C79	10000		30-1238-3	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C80	.047	400	30-4650-45	BPD-05	DF-503	CUB4S47		PT4147	4TM-S47	
C81	.01	600	30-4650-58	BPD-01	DD-103	CUB6S1	GP3-333-103	PT611	6TM-S1	
C82	.01	600	30-4650-58	BPD-01	DD-103	CUB6S1	GP3-333-103	PT611	6TM-S1	

CONTROLS

ITEM No.	RATING: RESIST ANCE	WATTS	REPLACEMENT DATA: PHILCO Part No.	CENTRALAB Part No.	CLAROSTAT Part No.	IRC Part No.	MALLORY Part No.	INSTALLATION NOTES
R1A	250KΩ	½	33-5566-81	AB-51	A47-250K-2	Q13-130	U-44	Volume
B	Shaft		Not Req.	AK-3	FS-3	Not Req.	Not Req.	Attach to R1A.
C	Switch		Not Req.	KB-1	SWE-12	T6-1	US-26	Attach to R1A.
R2A	15KΩ	½	33-5572-15	ABT-154		Q13-115K		Contrast tapped at 10KΩ.
B	Shaft		Not Req.	AK-3		Not Req.		Attach to R2A.
R3A	100KΩ	½	33-5572-16	B-40	A47-100K-8	Q11-129	TA15L	Brightness
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R3A.
R4A	1MΩ	½	33-5572-10	B-59	A47-1Meg-5	Q11-137	TA15L	Vert. Hold
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R4A.
R5A	50KΩ	½	33-5572-8	B-51	A47-50K-6	Q11-123	TA54L	Horiz. Hold
B	Shaft		Not Req.	AK-3	FS-3	Not Req.	Not Req.	Attach to R5A.
R6A	6000Ω	½	88-5572-17	AB-13	A47-7500-5	Q11-115	SU-20	Vert. Linearity
B	Shaft		Not Req.	AK-1	FS2-1/4	Not Req.	Not Req.	Attach to R6A.
R7A	2.5Meg	½	33-5572-1	BX-53	A47-2.5Meg5	Q11-239	TA255L	Height
B	Shaft		Not Req.	Not Req.	FS3-½	Not Req.	Not Req.	Attach to R7A.
R8	12.5KΩ	2	33-5574			WFK12, 500	R18M1,	Width - Wire Wound
R9A	250KΩ	½	33-5572	AB-50	A47-250K-5	Q11-130	TA254L	Horiz. Osc.
B	Shaft		Not Req.	AK-1	FS5-½	Not Req.	Not Req.	Attach to R9A.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING: OHMS	WATT	REPLACEMENT DATA: PHILCO Part No.	IRC Part No.	NOTES
R10	470K		66-4478340	BTS-470K	
R11	22KΩ		66-3228340	BTS-22K	
R12	470KΩ 5%		66-4478240	BTS-470K 5%	
R13	470KΩ 5%		66-4478240	BTS-470K 5%	
R14	180Ω	1	66-2184340	BTA-180Ω	
R15	330Ω		66-2334340	BTA-330Ω	
R16	3300Ω		66-2338340	BTS-3300	
R17	100KΩ		66-4108340	BTS-100K	
R18	22KΩ		66-3228340		
R19	15KΩ		66-3128340		
R20	2200Ω		66-2228340	BTS-2200	
R21	47KΩ		66-4478340	BTS-47K	
R22	3300Ω	1	66-2334340	BTA-3300	
R23	2.2MΩ	2	66-3228340	BTS-2.2Meg	
R24	1.5Meg 5%		66-5152240	BTS-1.5Meg5%	
R25	10Meg 5%		66-6208240	BTS-10Meg5%	
R26	2.2Meg		66-5228340	BTS-2.2Meg	
R27	220KΩ		66-4228340	BTS-220K	
R28	150Ω		66-2158340		
R29	1000Ω		66-2108340	BTS-1000	
R30	330Ω		66-1338340	BTS-330	
R31	47Ω		66-0478340	BTS-47	
R32	47KΩ		66-4478340	BTS-47K	
R33	330Ω		66-1338340	BTS-330	
R34	47Ω		66-0478340	BTS-47	
R35	470Ω		66-1478340	BTS-470	
R36	220Ω		66-2228340	BTS-220	
R37	3900Ω		66-2398340	BTS-3900	
R38	470Ω		66-4478340	BTS-470K	
R39	3300Ω		66-3338340	BTS-3300	
R40	4.7Meg		66-5478340	BTS-4.7Meg	
R41	1.6Meg			BTS-1.6Meg	Note 1
R42	4.7Meg			BTS-4.7Meg	Note 2
R43	470KΩ		66-4478340	BTS-470K	
R44	1Meg		66-5108340	BTS-1Meg	
R45	82Ω		66-0828340	BTS-82	
R46	1200Ω	1	66-2128340	BTA-1200	
R47	4700Ω		66-2478340	BTS-4700	
R48	5600Ω	7	33-3335-134		
R49	2200Ω		66-2228340	BTS-2200	
R50	15KΩ	2	66-3158340	BTS-15K	
R51	150KΩ		66-4158340	BTS-150K	
R52	220KΩ		66-4228340	BTS-220K	
R53	3900Ω		66-2398340	BTS-3900	

ITEM No.	RATING: OHMS	WATT	REPLACEMENT DATA: PHILCO Part No.	IRC Part No.	NOTES
R54	1Meg	2	66-5108340	BTS-1Meg	
R55	39KΩ	2	66-3398340	BTS-39K	
R56	27KΩ		66-3278340	BTS-27K	
R57	330Ω		66-1338340	BTS-330	
R58	22KΩ		66-3228340	BTS-22K	
R59	330Ω		66-1338340	BTS-330	
R60	47KΩ		66-3478340	BTS-47K	
R61	100Ω		66-2108340	BTS-100	
R62	10Meg		66-6108340	BTS-10Meg	
R63	270KΩ		66-4278340	BTS-270K	
R64	1.5Meg		66-5158340	BTS-1.5Meg	
R65	5.6Meg		66-5568340	BTS-5.6Meg	
R66	220Ω	1	66-1228340	BTA-220	
R67	82KΩ		66-3828340	BTS-82K	
R68	5.6Meg			BTS-5.6Meg	Note 1
R69	150KΩ		66-4158340	BTS-150K	
R70	820KΩ		66-4828340	BTS-820K	
R71	15KΩ		66-3158340	BTS-15K	
R72	22KΩ	1	66-3228340	BTS-22K	
R73	680KΩ		66-4688340	BTS-680K	
R74	1Meg		66-5108340	BTS-1Meg	
R75	12KΩ	1	66-3128340	BTS-12K	
R76	2.2Meg		66-5228340	BTS-2.2Meg	
R77	10KΩ	10	33-1363-1	PW10-10K	
R78	1000Ω				
R79	100Ω				
R80	820KΩ		66-4368340	BTS-390K	
R81	680KΩ		66-4688340	BTS-680K	
R82	56KΩ	1	66-3564340	BTA-56K	
R83	5.7Meg		66-5478340		
R84	220KΩ		66-4228340	BTS-220K	
R85	150KΩ	1	66-3154340	BTS-150K	
R86	1200Ω		66-2128340	BTS-1200	
R87	56KΩ		66-3568340	BTS-56K	
R88	470KΩ		66-3478340		
R89	8200Ω		66-2828340	BTS-8200	
R90	4700Ω		66-2478340	BTS-4700	
R91	1Meg		66-5108340	BTS-1Meg	
R92	5000Ω	7	33-1335-91	PW7-5000	
R93	1.7MΩ		66-3178340	BTA-47K	
R94	56KΩ		66-3568340		
R95	2.2Ω		66-0228360	BW1-2.2	
R96	100KΩ		66-4108340	BTS-100K	

Note 1. Not used in some versions.
Note 2. Some versions use a 6.8Meg ½W resistor in this application (Mfgr. Part No. 66-5688340).

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	SEC. 1	SEC. 2	SEC. 3	REPLACEMENT DATA: PHILCO Part No.	Halldorson Part No.	Merit Part No.	Stancor Part No.	Thordarson Part No.	Triad Part No.
T1	117VAC	650VCT	5V	6.3V	32-8690			P8179		
	② 1.44A	② 200A	③ 3A	③ 10A						

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: PHILCO Part No.	Halldorson Part No.	Merit Part No.	RCA TYPE No.	Stancor Part No.	Thordarson Part No.	Triad Part No.
T2	Vert. Osc. Trans.	32-8676	B8705 ①	A-3004 ①		V404 ① ③	A-8126 ①	26A02 ①	A-120Z ①
T3	Horiz. Output Trans.	32-8701-1	FB444 ② RF800*4②	HVO-21 ② ③	232T1 *1	X092 * ① ③	A-8230 * ② ③	FLY-27 ② ③	D-70 * ② ③
T4	Vert. Output Trans.	32-8658-1	21S04	A-3037	222T1	V313	A-8123	26S52	A-402X
T5A	Yoke-Horiz. (30MH)	32-8660 ④	21S04	A-3037	222T1	V313	A-8123	26S53	A-402X
B	Vert. (423MH)	32-9670 ⑤	DF504 ⑥	MDF-71		DY-12A ⑤ ⑥	Y-18 ⑤ ⑥	Y-24 ⑤ ⑥

① Connect red lead to yellow lead; then connect blue lead to ground, red and yellow leads to cathode (pin #8 or V11); green lead to grid capacitor (C63).
② Drill new mounting hole(s).
③ Fabricate new mounting bracket.
④ Alternate Philco part number.
⑤ Includes resistors R78 and R79.
⑥ Use original yoke clamping network.
⑦ Connect horizontal yoke terminal #3 to yoke plug pin #5; horizontal yoke terminals #2 and #7 to yoke plug pin #2; horizontal yoke terminal #1 to yoke plug pin #8.
* This part may be superceded by parts manufacturer's introduction of special unit for this application.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

	ORIGINAL (TERMINAL CONNECTIONS)	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
	12	4	5	10	6	5	5	5
	2	Jumper 7 & 8	2	9	2	2	2	2
	6	6	6	N.C See Note ③	6	6	6	6
	1	1	1	3	1	1	1	1
	7	Term. #1 of RF800	8	2	8	8	8	8
	8	Term. #2 of RF800	7	1	7	7	7	7
Connect Width Coil Across		Terms. #3 & #4 of RF800 Across 5 & 1						
Special Notes		③	③					

① If the picture is out of phase, reverse width coil primary or secondary.
② To reduce yoke "ringing" add capacitor (approx. 100MMF @ 3KV) in series with resistor R94 across horizontal yoke terminals #1 and #2 (yoke socket pins #3 and #5).

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	SEC.	REPLACEMENT DATA: PHILCO Part No.	Halldorson Part No.	Merit Part No.	Stancor Part No.	Thordarson Part No.	Triad Part No.	NOTES
T6	5.4KΩ	3-4Ω	32-8674	21U01	A3035	A3332	26S58	D-81	① Drill one new mtg. hole.

SPEAKER

ITEM No.	RATINGS: SIZE	FIELD	V	C	IMP.	REPLACEMENT DATA: PHILCO Part No.	QUAM Part No.	RCA TYPE No.	NOTES
SP1	6"	PM			3-4Ω	38-1641-21 ①	6A1	22S61	① Used in Models 22D4150, 22D4150U, L, UL.
	6"	PM			3-4Ω	38-1641-30 ②	6A1	22S61	22D4320L, M, T, W.
	5 1/4"	PM			3-4Ω	38-1639-14 ③	5A07	21T81	② Used in Models 22D4150, 22D4150U, L, UL.
	5 1/4"	PM			3-4Ω	38-1639-9 ④	5A07	21T81	③ Used in Models 18D2030C, UC, 18D2030G, UG,
	5 1/4"	PM			3-4Ω	38-1639-18 ⑤	5A07	21T81	18D2030M, UM.
	8"	PM			3-4Ω	38-1651-5 ⑥	8A81	23S61	④ Used in Models 18D2030C, UC, 18D2030G, UG,
	8"	PM			3-4Ω	38-1651-6 ⑦	8A81	23S61	18D2030L, UL, 18D2030M, UM, 18D2132L, UL, 22D4030E,
	8"	PM			3-4Ω	38-1651-13 ⑧	8A81	23S61	UE, 22D4030U, UL, 22D4032, 22D4136, U, L, UL,
									22D4138, U, L, DL.
									⑤ Used in Models 18D2132L, U, 22D4030E, EU,
									22D4030U, L, UL, 22D4032, 22D4136, U, L, UL,
									22D4138, U, L, DL.
									⑥ Used in Models 22D4154, U.
									⑦ Used in Model 22D4158, U.
									⑧ Used in Models 22D4154, U, 22D4158, U.

COILS (RF-IF)

ITEM No.	USE	DC RES.: PRI.	SEC.	REPLACEMENT DATA: PHILCO Part No.	MERIT Part No.	MALLER Part No.	NOTES
L1	Ant. Matching Trans.	.7Ω	.7Ω	32-4423-3			
L2	Ant. Matching Trans.	.7Ω	.7Ω	32-4423-3			
L3	IF Trap	0Ω					Wound on 22MMF cap.
L4	Ant. Coil	0Ω					Channel 13 Note 1.
L5	Ant. Coil	0Ω					Channel 6 Note 1.
L6	Ant. Coils	0Ω					Note 1.
L7	Neut. Coil	0Ω		32-4633-50			Note 2.
L8	RF Coil	0Ω					Channel 13 Note 2.
L9	RF Coil	0Ω					Channel 6 Note 2.
L10	RF Coils	0Ω					Note 2.
L11	Mixer Grid Coil	0Ω					Channel 13 Note 3.
L12	Mixer Grid Coil	0Ω					Channel 6 Note 3.
L13	Mixer Grid Coils	0Ω					Note 3.
L14	Osc. Coils	0Ω		32-4027			
L15	RF Coil	0Ω		32-4633-31			
L16	Conv. Plate	0Ω		32-4639-1			Tapped
L17	47.25MC Trap	.1Ω		32-4597-2	19-1000	4602	1.2 Microhenries
L18	1st IF Coupling Coil	.1Ω		32-4597-3	19-1001	TV-189	6175 .84 Microhenries
L19	1st Video IF	.1Ω	.1Ω	32-4486-45		TV-180	6319
L20	Fil. Choke	.1Ω		32-4113-69	19-1002		6606 3 Microhenries
L21	2nd Video IF	.1Ω	.1Ω	32-4486-46	17-4533	TV-180	6319
L22	3rd Video IF	.1Ω	.1Ω	32-4486-47	17-4534	TV-180	6319
L23	47.25MC Trap	.1Ω		32-4597-2	19-1000		6602
L24	Series Peaking Coil	3.3Ω		32-4530	19-8022		6183 22 Microhenries
L25	Shunt Peaking Coil	5.7Ω		32-4480-6	19-2350	TV-185	6181 250 Microhenries
L26	Detector Peaking Coil	1.1Ω		32-4113-53	19-1003		6605 3 Microhenries

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (cont)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA PHILCO PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L27	Series Peaking Coil	6.2Ω		32-4480-18	19-3160	TV-184	4644	150 Microhenries
L28	4.5MC Trap	1.2Ω		32-4463-11				
L29	Shunt Peaking Coil	7.2Ω		32-4480-5	19-4400		6136	400 Microhenries
L30	Series Peaking Coil	6Ω		32-4480-4	19-3250	TV-185	6181	250 Microhenries
L31	Sound IF	4.2Ω		32-4463-14				
L32	RF Coil	1.1Ω		32-4112-52	19-1003		4606	3 Microhenries
L33	Ratio Det.	7.5Ω	1.1ΩCT	32-4631-1A	17-3497	TV-115	6205	Tertiary Winding - 1.3Ω
L34	RF Choke	1.8Ω		32-4112-50	19-1006		4624	
L35	RF Choke	1.8Ω		32-4112-50	19-1006		4624	
L36	RF Choke	1.8Ω		32-4112-50	19-1006		4624	

Note 1. Part of complete assembly. Complete assembly Part #76-9710.
Note 2. Part of complete assembly. Complete assembly Part #328-0029-1.
Note 3. Part of complete assembly. Complete assembly Part #328-0043.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA PHILCO PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	RCA TYPE No.	Ram PART No.	Thordarson PART No.	NOTES
L37	158Ω		32-4557-4							

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D.C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA PHILCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L38	.200A	72Ω	1.4HY	32-8693	C5040	C2994	C2327	26C41	C-21X ①

① Drill one new mounting hole.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA PHILCO PART No. FUSE	PHILCO PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG S/B	7/10A 250V		76-4519-2	313.750 (3AG S/B 3/4A)	357001	MDL 7/10	4405

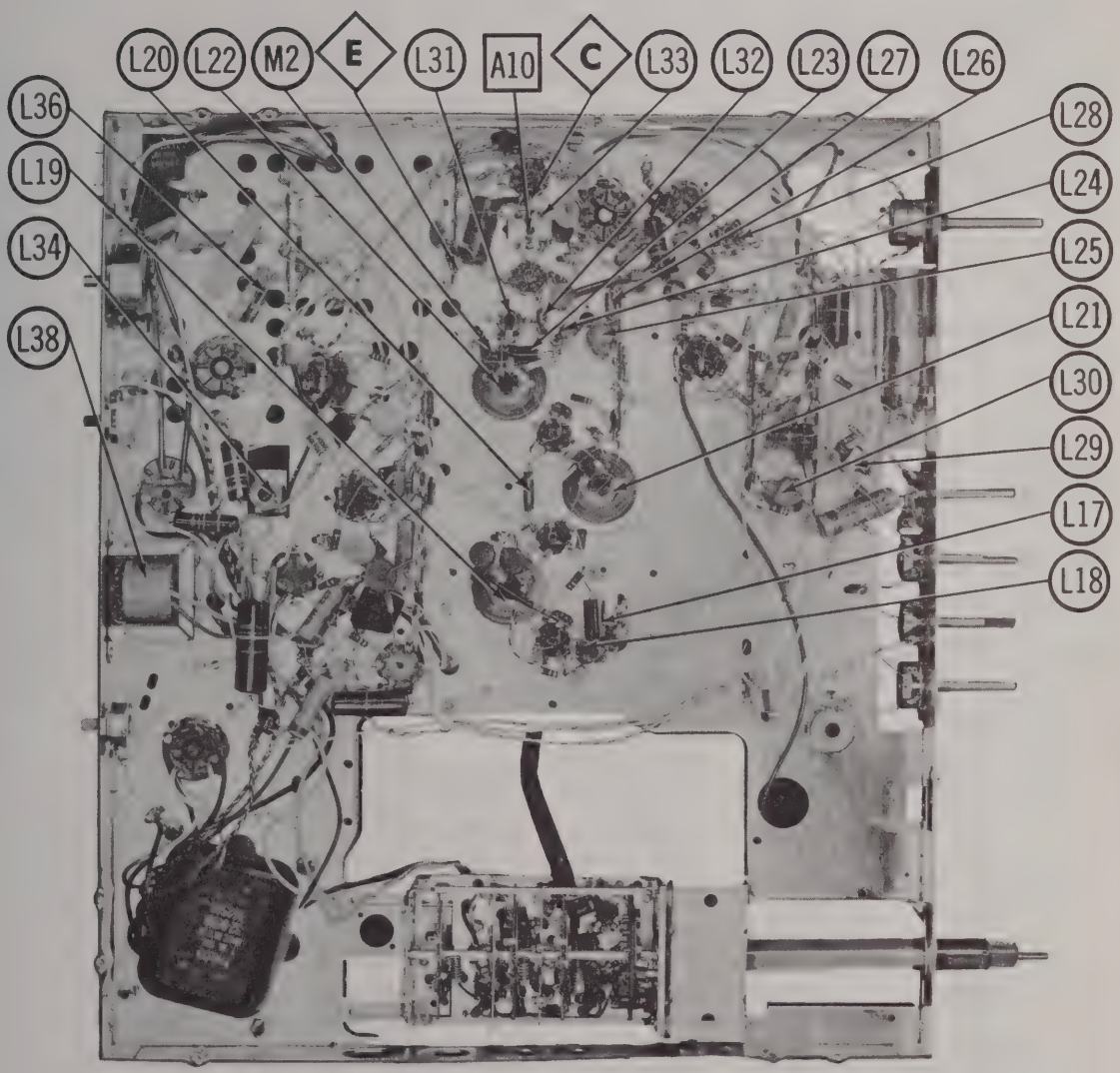
CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA PHILCO PART No.	REPLACEMENT DATA SYLVANIA PART No.	NOTES
M2	1N60	34-8022-2	1N60	Video Det. (Pigtail)

MISCELLANEOUS

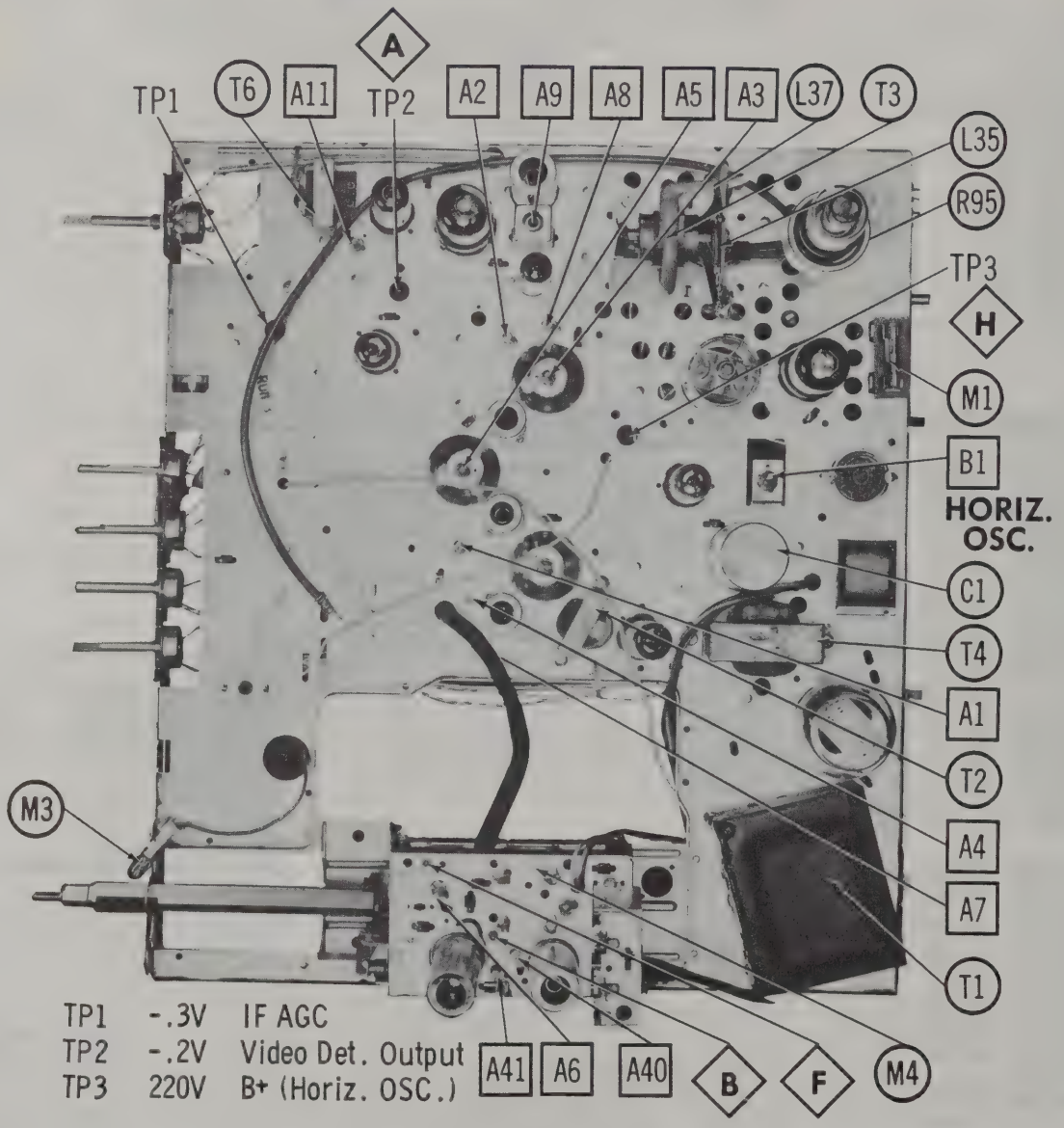
ITEM No.	PART NAME	PHILCO PART No.	NOTES
M3	Dial Light	3463-4	#47
M4	Tuner	76-9192-3 *	VHF (T-38A); Chassis TV-330
	Tuner	76-8946-10 †	VHF (T-36D); Chassis TV-330U
M5	Focus Magnet	76-9511	Includes Centering Magnet-All Models
		28-10506	Centering Magnet-Models 18D3020C, UC, 18D3020G, UG, 18D3020L, UL, 18D3020M, UM
		56-7869-2	Centering Magnet-Models 18D3122, U, 22D4030E, UE, 22D4030L, UL
M6	Ion Trap	76-6077	All Models
M7	Correction Magnet	76-9173 ■	Models 18D3020M, UM
	Mask	28-10596-4	Models 18D3020C, UC, 18D3020G, UG
	Mask	28-10596-3	Models 18D3020L, UL, 18D3020M, UM
	Mask	28-10596-2	Models 18D3122U
	Mask	28-10076-23	Models 22D4030E, UE, 22D4029G, UG
	Mask	28-10075-26	Models 22D4030L, UL, 22D4029L, UL
	Mask	28-9376-21	Models 22D4320L, UL, 22D4320M, UM, 22D4320W, UW
	Mask	28-9376-22	Models 22D4320T, UT
	Mask	28-9376-18	Models 22D4154, U
	Mask	28-9376-19	Model 22D4158U
	Mask	28-9376-20	Model 22D4158
	Mask	28-10075-18	Models 22D4150, U
	Mask	28-10075-21	Models 22D4150L, UL
	Mask	28-10075-20	Model 22D4136
	Mask	28-10075-24	Models 22D4136U, 22D4032, 22D4136XW, UXW,
	Mask	28-10075-19	Models 22D4136L, UL, 22D4138, U, 22D4138L, UL
	Mask	28-10075-25	Models 22D4131, U, 22D4131L, UL, 22D4136XL, UXL
	Mask	28-9376-23	Models 22D4153, U, 22D4153X, UX
	Mask	28-9376-24	Models 22D4153L, UL, 22D4153XL, UXL
	Safety Glass	59-9213-51	Models 18D3020C, UC, 18D3020G, UG, 18D3020L, UL, 18D3020M, UM
	Safety Glass	54-9213-54	Models 18D3122, U
	Safety Glass	54-9213-40	Models 22D4030E, UE, 22D4030L, UL, 22D4032, 22D4029G, UG, 22D4029L, UL
	Safety Glass	54-9213-55	Models 22D4320L, UL, 22D4320M, UM, 22D4320T, UT 22D4320W, UW, 22D4150, U, 22D4150L, UL
	Safety Glass	54-9213-43	Models 22D4154U, 22D4158U, 22D4153U, 22D4153L, UL, 22D4153X, UX, 22D4153XL, UXL
	Safety Glass	54-9213-46	Models 22D4136U, 22D4136L, UL, 22D4138, U, 22D4138L, UL, 22D4131, U, 22D4131L, UL, 22D4136XL, UXL, 22D4136XW, UXW

* Alternate Part No. 76-9192-1.
† Alternate Part No. 76-8946-4.
■ Alternate Part No. 76-9179.



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENT

PROPERTY OF
L E [illegible] SHIP
[illegible] ST.
DENVER, COLORADO



TP1 -.3V IF AGC
TP2 -.2V Video Det. Output
TP3 220V B+ (Horiz. OSC.)

CHASSIS TOP VIEW

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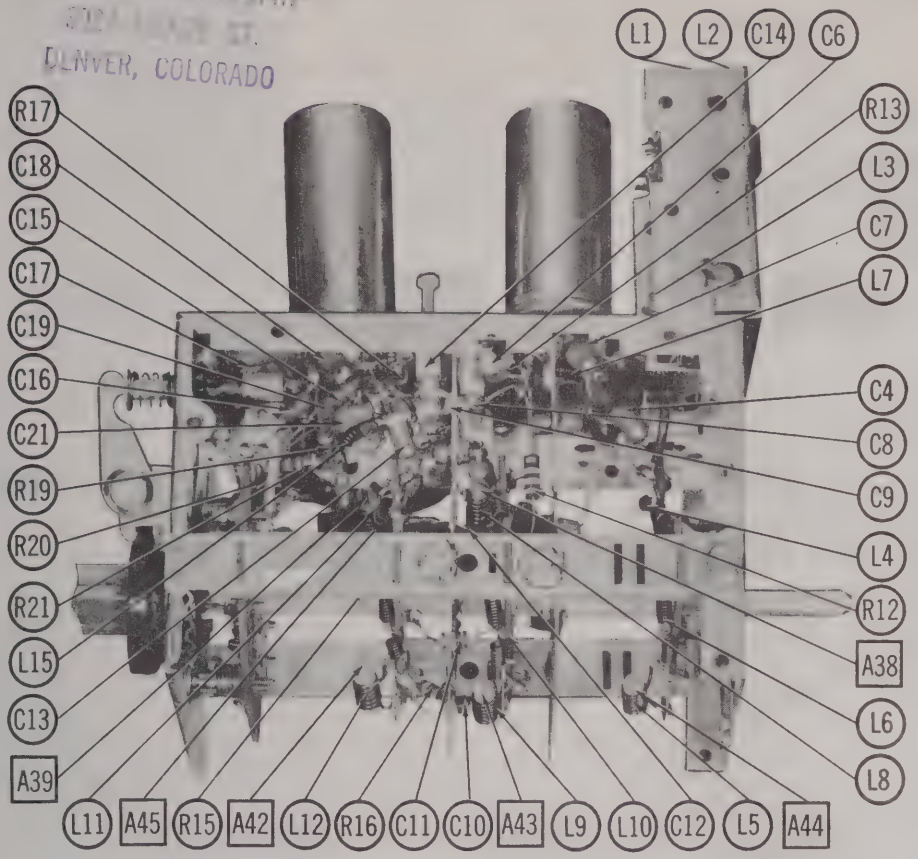
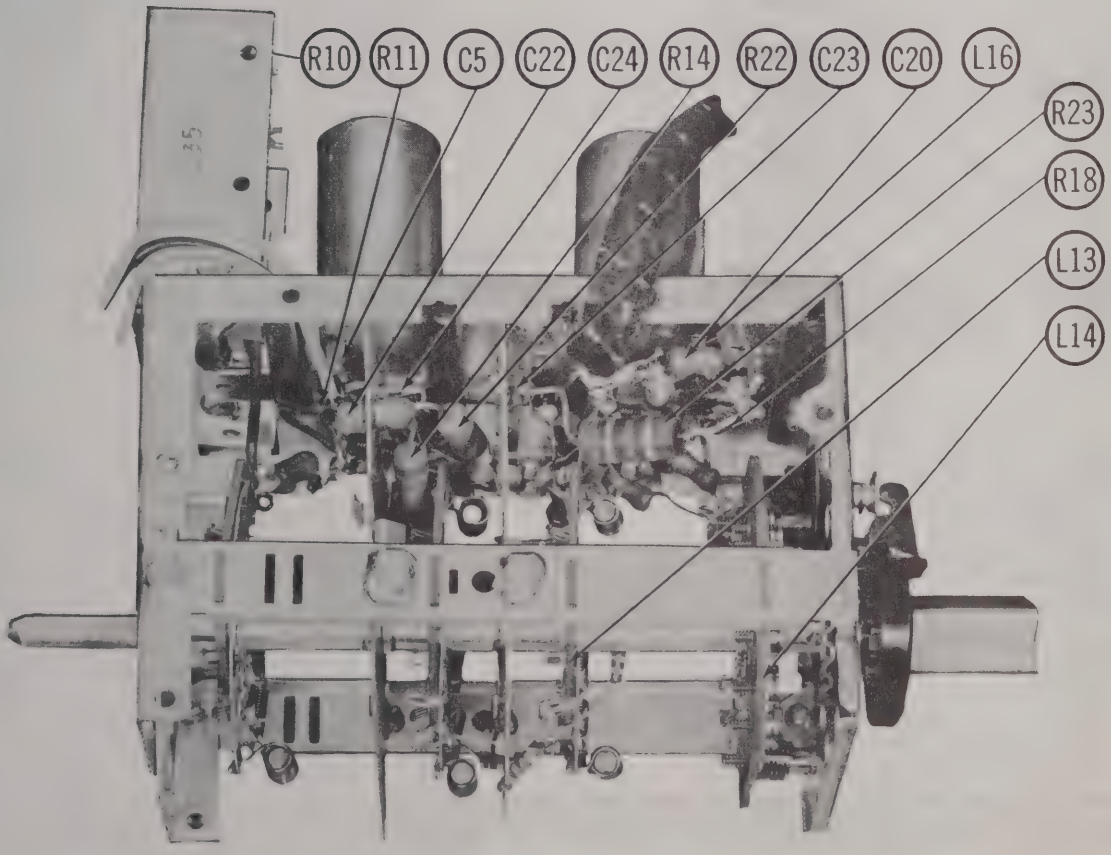
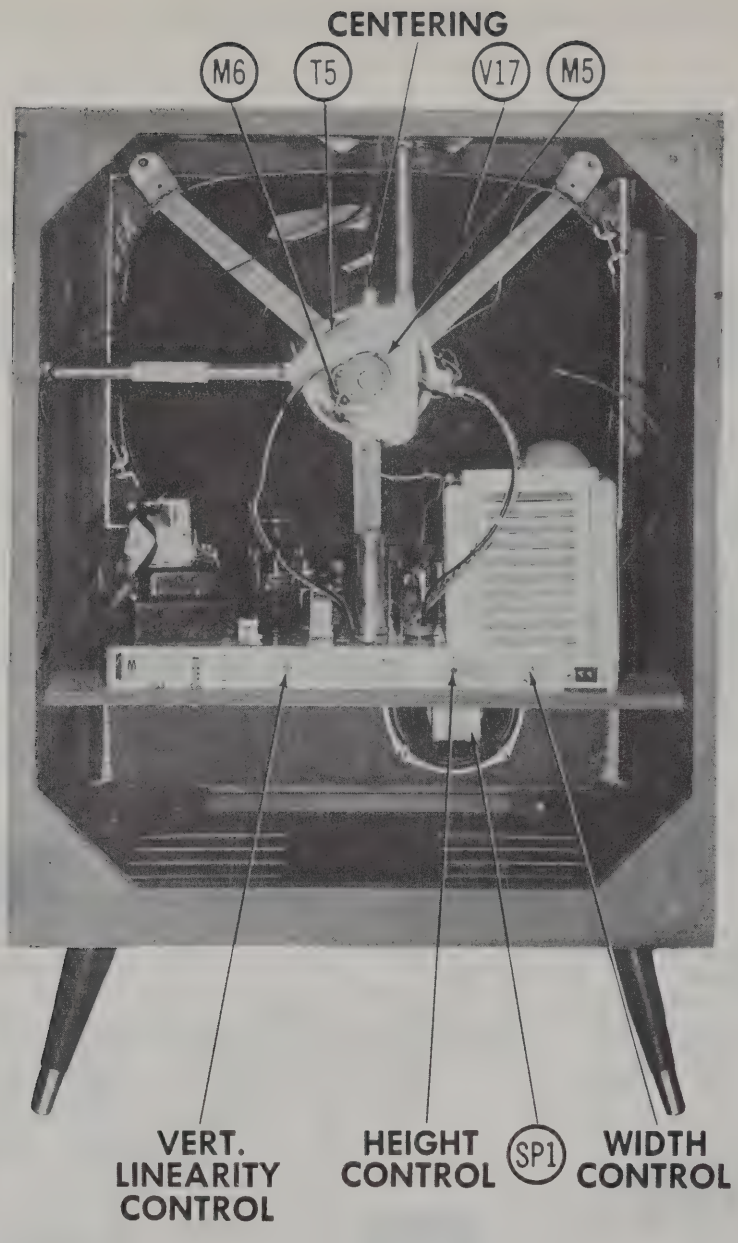
L. F. CLARKSHIP
DENVER, COLORADO



RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Tune in a TV station, preferably with a test pattern. Reduce the picture width until approximately one inch of blank screen appears on each side of the picture.

Increase the brightness control setting until the blanking becomes visible as indicated by a dark bar at each side of the picture. Connect a .1MFD capacitor from point ⟨H⟩ to chassis.

Set the horizontal hold control to the center of its range.

Adjust the horizontal oscillator control (R9) until the picture is centered between the two blanking bars.

Remove the .1MFD capacitor.

Adjust the horizontal oscillator slug (B1) until the picture is again centered between the two bars.

Rotate the horizontal hold control slowly thru its range. The picture should lose sync between the two extreme ends of the rotation. If it does not, readjust the horizontal oscillator control until that condition is obtained.

Check the number of diagonal bars on either side of the pull-in range of the horizontal hold. There should be one or two bars present.

If proper pull-in is not obtained, repeat the above procedure. Adjust the width control for a picture slightly wider than necessary to fill the picture mask horizontally.

RAULAND
MODEL HF255

RAULAND
MODEL HF255

TRADE NAME	Rauland Model HF255	
MANUFACTURER	Rauland-Borg Corp., 3515 W. Addison St., Chicago 18, Ill.	
TYPE SET	AC Operated FM-AM Superheterodyne Tuner	
TUBES	Eight	
POWER SUPPLY	110-120 Volts AC-60 Cycles	RATING .30 Amp. @ 117 Volts AC
TUNING RANGE - BROADCAST	535KC-1650KC	FREQ. MOD. 88MC-108MC

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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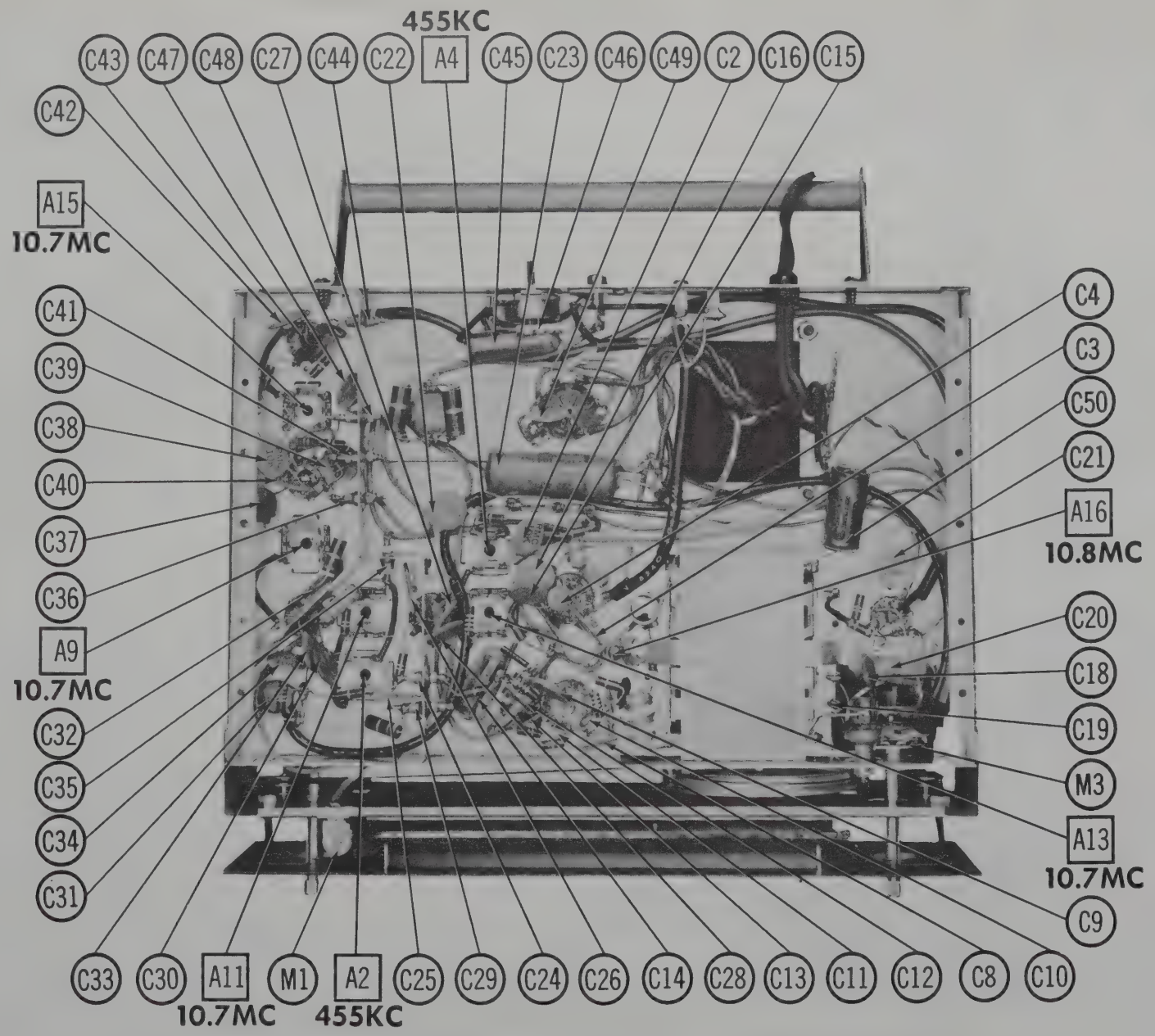
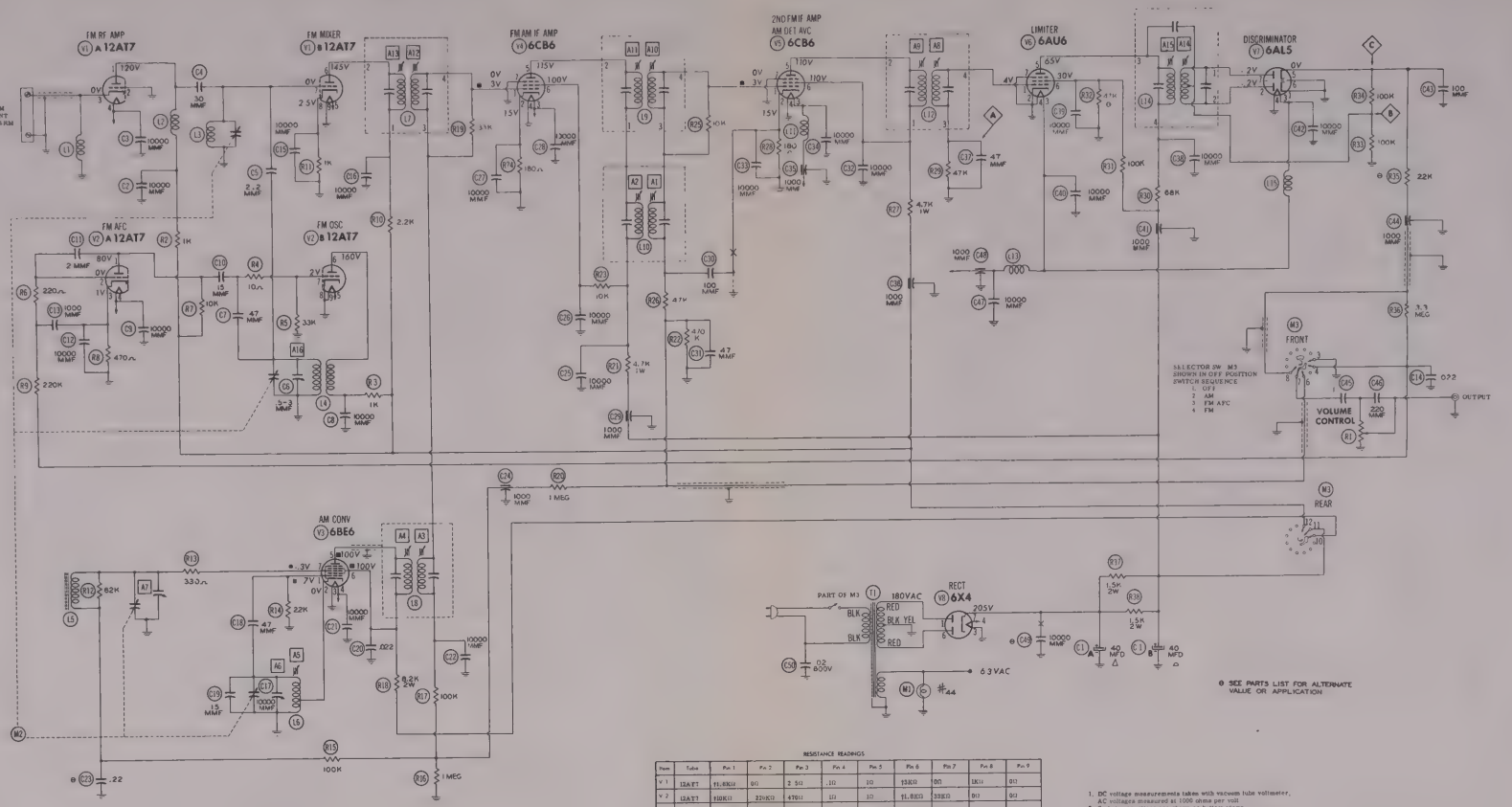


CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	12AT7	11.8KΩ	0Ω	2.5Ω	.1Ω	1Ω	13KΩ	0Ω	1KΩ	0Ω
V 2	12AT7	11KΩ	22KΩ	47Ω	1Ω	1Ω	11.8KΩ	33KΩ	0Ω	0Ω
V 3	6BE6	23KΩ	5Ω	0Ω	1Ω	†∞MΩ‡	†∞MΩ‡	700KΩ		
V 4	6CB6	700KΩ	18Ω	.1Ω	0Ω	15.5KΩ	11KΩ	0Ω		
V 5	6CB6	400KΩ	18Ω	1Ω	0Ω	15.5KΩ	15.5KΩ	0Ω		
V 6	6AU6	47KΩ	0Ω	.1Ω	0Ω	1.100K	1.70KΩ	0Ω		
V 7	6AL5	0Ω	100K Ω	1Ω	0Ω	200KΩ	0Ω	100KΩ		
V 8	6X4	290Ω	NC	0Ω	1Ω	TP	290Ω	150KΩ		

ALL MEASUREMENTS TAKEN IN FM POSITION UNLESS OTHERWISE DESIGNATED
† MEASURED FROM PIN 7 OF V8.
‡ MEASURED IN AM POSITION.
TP - TIE POINT
NC - NO CONNECTION.

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings
6. Volume control at maximum, no signal applied for voltage measurements

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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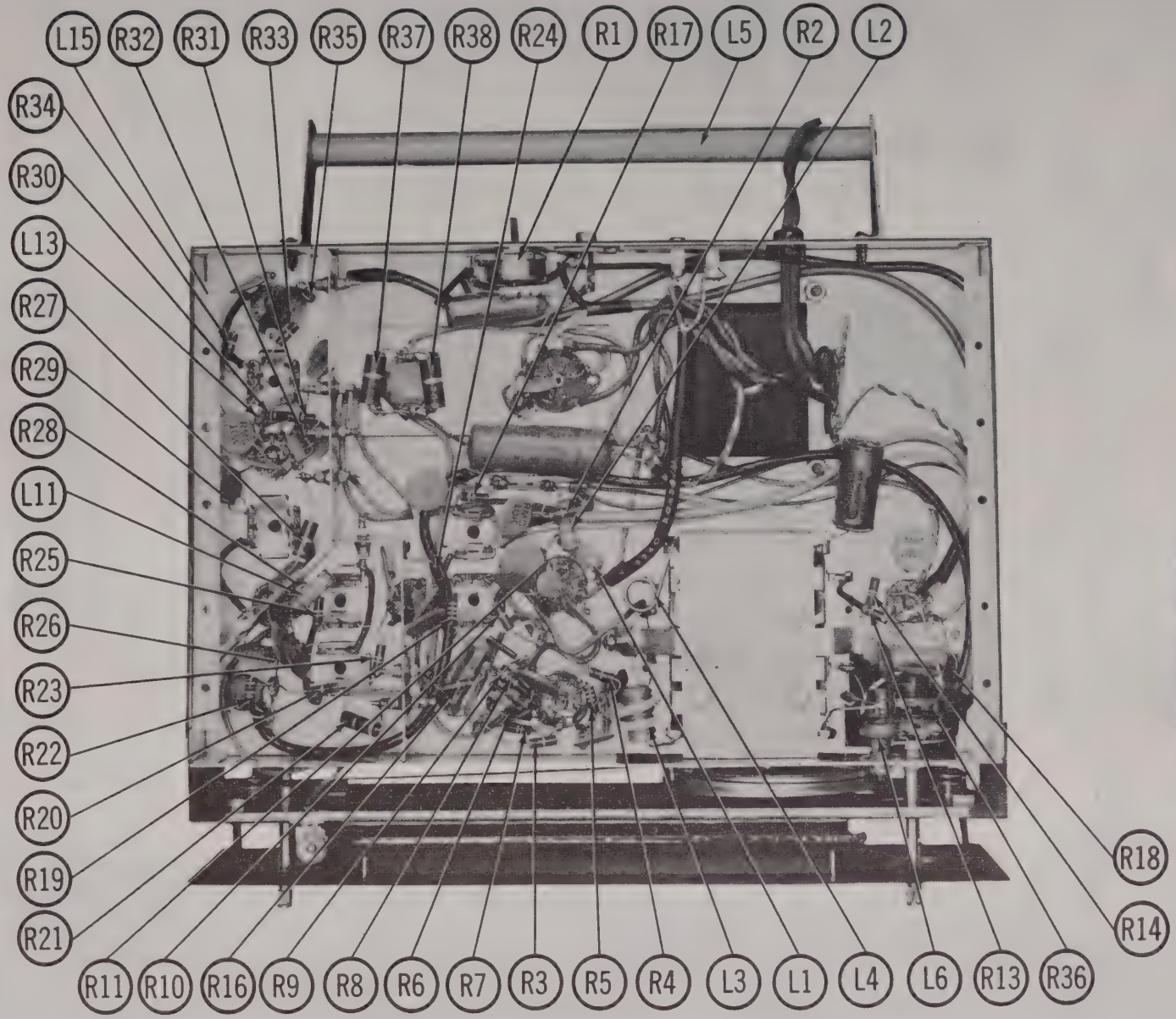
325-10



PROPERTY OF
L. F. RAWKENSHIP
[illegible] MONTE ST.
DENVER, COLORADO

CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Use an insulated alignment screwdriver for adjusting.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency of dial.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.01MFD	High side to pin 7 (grid) of 6BE6 (V3). Low side to chassis.	455KC (400~Mod)	AM	Point of non-interference	AC probe to output jack. Common to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2.		Loop (Radiated)	600KC	"	600KC	"	A5	Adjust for maximum deflection. Repeat steps 1 and 2 until no further increase can be detected.
3.		"	1500KC	"	Tune to 1500KC signal	"	A6, A7	Adjust for maximum deflection.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	.01MFD	High side to pin 7 (grid) of 12AT7 (V1). Low side to chassis.	10.7MC (Unmod)	FM	Point of non-interference	DC probe to point (A). Common to chassis.	A8, A9, A10, A11 A12, A13	Adjust for maximum deflection.
5.	"	"	"	"	"	DC probe to point (C). Common to chassis.	A14	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
6.	"	"	"	"	"	"	A15	Readjust A14 for slight deflection. Adjust A15 for maximum deflection. Repeat step 5.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	.01MFD	High side to pin 7 (grid) of 12AT7 (V1). Low side to chassis.	10.7MC (450KC Swp)	FM	Point of non-interference	Vert. Amp. to point (A). Low side to chassis.	A8, A9, A10, A11 A12, A13	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
5.	"	"	"	"	"	Vert. Amp. to point (B). Low side to chassis.	A15	"
6.	"	"	"	"	"	Vert. Amp. to point (C). Low side to chassis.	A14	Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A15 for maximum amplitude and straightness of crossover lines. Proceed with step 7.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	270Ω Carbon Resistor	Thru 270Ω to FM antenna terminal. Low side to chassis.	88MC (Unmod)	FM	88MC	DC probe to point (C). Common to chassis.	L4	Compress or expand coil turns for zero reading.
8.	"	"	108MC	"	108MC	"	A16	Adjust for maximum deflection.
9.	"	"	88MC	"	88MC	DC probe to point (A). Common to chassis.	L3	Compress or expand coil turns for maximum deflection.

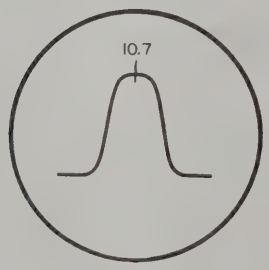


FIG. 1

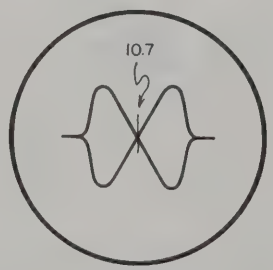


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM RF Amp.-FM Mixer	12AT7	
V2	FM Osc.-FM AFC	12AT7	
V3	AM Converter	6BE6	
V4	1st. FM-AM IF Amp.	6CB6	
V5	2nd. FM IF Amp.-AM Det.-AVC	6CB6	

ITEM No.	USE	TYPE	NOTES
V6	Limiter	6AU6	
V7	Discriminator	6AL5	
V8	Rectifier	6X4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA RAULAND PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲40	300		AFH2-33	B026	FP217.87	TMD31	D-130	TVL-2575
B	▲40	300							

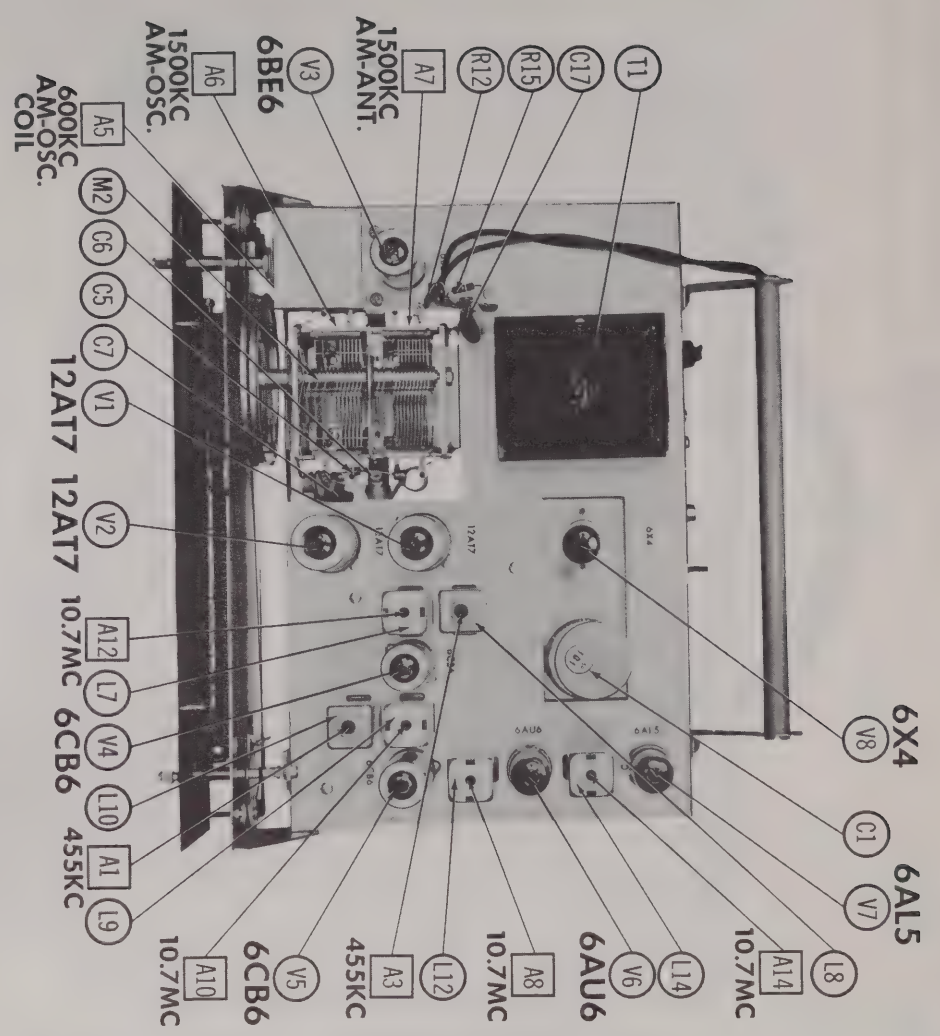
FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA RAULAND PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C3	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C4	30									
C5	2.2			NP0-SI2.2	TCZ-2R2	TZ05	NP0A-2R2		5TCCB-V22	
C6	.5-3				829-3		3115-01-0R5	CT565A		
C7	47			NP0-DI47	TCZ-47	Z033	NP0-338-470	ZT-5447	5TCC-Q47	
C8	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C9	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C10	15			NP0-DI15	TCZ-15	Z021	NP0K-150		5TCC-Q15	
C11	2			NP0-SI2.2	TCZ-2R2	Z005	NP0A-2R2		5TCCB-V22	
C12	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C13	1000			DI-001		G069	811-102	UC-521	5GA-D1	
C14	.022	200		BPD-02	DD-203	CUB4S22	817-02	PT4122	2TM-S22	
C15	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C16	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C17	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C18	47			NP0-DI47	TCZ-47	Z033	NP0-337-470	ZT-5447	5TCC-Q47	
C19	15			NP0-DI15	TCZ-15	Z021	NP0K-150		5TCC-Q15	
C20	.022	200		BPD-02	DD-203	CUB4S22	817-02	PT4122	2TM-S22	
C21	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C22	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C23	.22	1000								Note 1
C24	1000									
C25	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C26	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C27	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C28	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C29	1000									
C30	100			NP0-DI100	TCZ-100	TZ30	NP0-337-101	ZT-531	5TCC-T1	
C31	47			NP0-DI47	TCZ-47	Z033	NP0-338-470	ZT-5447	5TCC-Q47	
C32	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C33	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C34	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C35	1000									
C36	1000									
C37	47			NP0-DI47	TCZ-47	Z033	NP0-337-470	ZT-5447	5TCC-Q47	
C38	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C39	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C40	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C41	1000									
C42	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C43	100			NP0-DI100	TCZ-100	TZ30	NP0-337-101	ZT-531	5TCC-T1	
C44	1000									
C45	.1	200		P288N-1	DF-104	CUB2P1		PT401	2TM-P1	
C46	220			SI220	D6-221	TP39	GP2K-221	UC-5322	5GA-T22	
C47	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C48	1000									
C49	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	Note 2
C50	.02	600		P689X-02				OT-103	PX-126	

Note 1. Some versions use .18MFD in this application.
Note 2. Not used in some versions.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	RAULAND PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500KΩ	½	RP-504AF			B13-133	TA55A	Volume
B	Shaft		Not Req.			TM-2K1T	Not Req.	Attach to R1A

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	RAULAND PART No.	IRC PART No.	
R2	1000Ω			BTS-1000	
R3	1000Ω			BTS-1000	
R4	10Ω			BTS-10	
R5	33KΩ			BTS-33K	
R6	220Ω			BTS-220	
R7	10KΩ			BTS-10K	
R8	470Ω			BTS-470	
R9	220KΩ			BTS-220K	
R10	2200Ω			BTS-2200	
R11	1000Ω			BTS-1000	
R12	82KΩ			BTS-82K	
R13	330Ω			BTS-330	
R14	22KΩ			BTS-22K	
R15	100KΩ			BTS-100K	
R16	1Meg			BTS-1Meg	
R17	100KΩ			BTS-100K	
R18	8200Ω	2		BTB-8200	
R19	33KΩ			BTS-33K	
R20	1Meg			BTS-1Meg	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	RAULAND PART No.	IRC PART No.	
R21	4700Ω	1		BTA-4700	
R22	470KΩ			BTS-470K	
R23	10KΩ			BTS-10K	
R24	180Ω			BTS-180	
R25	10KΩ			BTS-10K	
R26	47KΩ			BTS-47K	
R27	4700Ω	1		BTA-4700	
R28	180Ω			BTS-180	
R29	47KΩ			BTS-47K	
R30	68KΩ			BTS-68K	
R31	100KΩ			BTS-100K	
R32	47KΩ			BTS-47K	Note 1
R33	100KΩ 5%			BTS-100K 5%	
R34	100KΩ 5%			BTS-100K 5%	
R35	22KΩ			BTS-22K	Note 2
R36	3.3Meg			BTS-3.3Meg	
R37	1500Ω	2		BTB-1500	
R38	1500Ω	2		BTB-1500	

Note 1. Some versions use 51KΩ resistor in this application.
Note 2. Some versions use 27KΩ resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	RAULAND PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @.3A	350VCT @.044A	6.3VAC @2.8A						22R38	

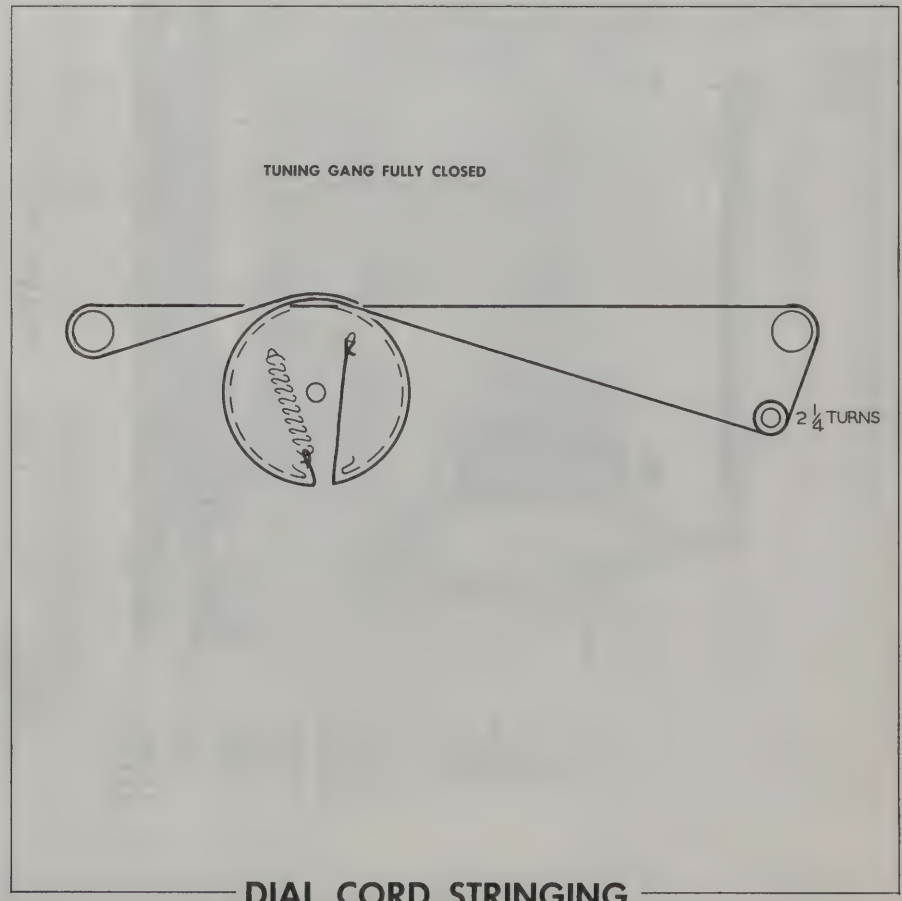
COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	RAULAND PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Cathode Choke	3Ω						3.3 Microhenries, (IRC part #C1A)
L2	RF Coil	3Ω						3.3 Microhenries, (IRC part #CLA)
L3	FM RF Coil	0Ω		LL-0054				
L4	FM Osc. Coil	0Ω	0Ω	LL-0055				
L5	AM Ant. Coil	.2Ω		LW-0098				
L6	AM Osc. Coil	5.5Ω		LL-0049				Tapped @.3Ω
L7	1st. FM IF	.5Ω	.5Ω	LR-0032	16-3487	FM-254	1463	
L8	1st. AM IF	15Ω	15Ω	LR-0041	16-6758	BC-352	12-C1	
L9	2nd. FM IF	.5Ω	.5Ω	LR-0033	16-3487	FM-254	1463	
L10	2nd. AM IF	15Ω	15Ω	LR-0041	16-6758	BC-353	12-C2	
L11	Fil. Choke	.44Ω			19-3001	TV-189	6175	.68 Microhenry (IRC part #CLA)
L12	3rd. FM IF	.5Ω	.5Ω	LR-0033	16-3487	FM-254	1463	
L13	Fil. Choke	.44Ω			19-3001	TV-189	6175	.68 Microhenry (IRC part #CLA)
L14	Discriminator	.5Ω	.8ΩCT	LQ-0179	17-3494	FM-253	1464	
L15	Fil. Choke	.44Ω			19-3001	TV-189	6175	.68 Microhenry (IRC part #CLA)

PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

ITEM No.	PART NAME	RAULAND PART No.	NOTES
M1	Dial Light		#44
M2	Tuning Cap.	CV-601	4 Gang (AM sections: 21-465MMF, 19-190MMF)
M3A	Switch		On-off (power) SPST
B	Switch		Selector (Rotary, wafer type)



DIAL CORD STRINGING

SENTINEL
MODEL 1U-355P

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DENVER, COLORADO

SENTINEL
MODEL 1U-355P

TRADE NAME	Sentinel Model 1U-355P
MANUFACTURER	Sentinel Radio Corp., 2100 W. Dempster, Evanston, Ill.
TYPE SET	Three Power Portable AM Superheterodyne Receiver
TUBES (Four)	Types 1R5 Converter, 1U4 IF Amplifier, 1U5 Det.-AVC-AF Amp., 3V4 Output
POWER SUPPLY	110-120 Volts AC-DC (or) 4.5 Volts "A" Supply & 90 Volts "B" Supply
RATING	.12 Amp. @ 117 Volts AC (or) 100MA @ 4.5 Volts DC & 10.5MA @ 90 Volts DC
TUNING RANGE—BROADCAST	540KC-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.2MFD	High side to ant. lug on gang. Low side to chassis.	455KC (400~ Mod.)	Tuning gang fully open	Across Voice Coil	A1, A2, A3, A4	Adjust for maximum output. If AC power is used without an isolation transformer, reduce dummy antenna to 200MMF to reduce hum modulation.
2.		Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	Tune to 1400KC signal	"	A6	"

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PARTS LIST AND DESCRIPTIONS

SENTINEL MODEL 1U-355P

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	1R5	
V2	IF Amplifier	1U4	
V3	Det. -AVC-AF Amp.	1U5	
V4	Output	3V4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA SENTINEL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	40	150	25E75	PRS150/25V50-30/100	BBRT5315C10	3N537	TDLT-13	FMT-331	TVA-3427
B	40	150							
C	100	10							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA SENTINEL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	.047	200	23E3214	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C3	100		23E4000-17	S1100	D6-101	TP34	GP1K-101	UC-531	5GA-T1	
C4	.1	200	23E2043-9	P288N-1	DF-104	CUB2P1		PT401	2TM-P1	
C5	10000		23E4004-17	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C6	.1	200	23E2043-9	P288N-1	DF-104	CUB2P1		PT401	2TM-P1	
C7	100		23E4000-17	S1100	D6-101	TP34	GP1K-101	UC-531	5GA-T1	
C8A	2000		23E2024	PA241	DD-202	K072	801-002	DC-522	34C5	
B	100				D6-101	TP34	GP1K-101	UC-531		
C	5000				DD-502	K080	811-005	DC-525		
D	5000				DD-502	K080	811-005	DC-525		
C9	.047	200	23E3214	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C10	5000		23E4004-15	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C11	.047	400	23E3414	BPD-05	DF-503	CUB4S47		PT4147	4TM-S47	
C12	.1	200	23E3416	P288N-1	DF-104	CUB2P1		PT401	2TM-P1	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SENTINEL PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2Meg	½	28E83A	AB-76	A47-2Meg-Z	Q13-139	U-55	Volume
B	Shaft		Not Req.	AK-4	KSS-3	Not Req.	Not Req.	Attach to R1A.
C	Switch		Not Req.	KB-2	SWE-20	76-2	US-27	Attach to R1A.

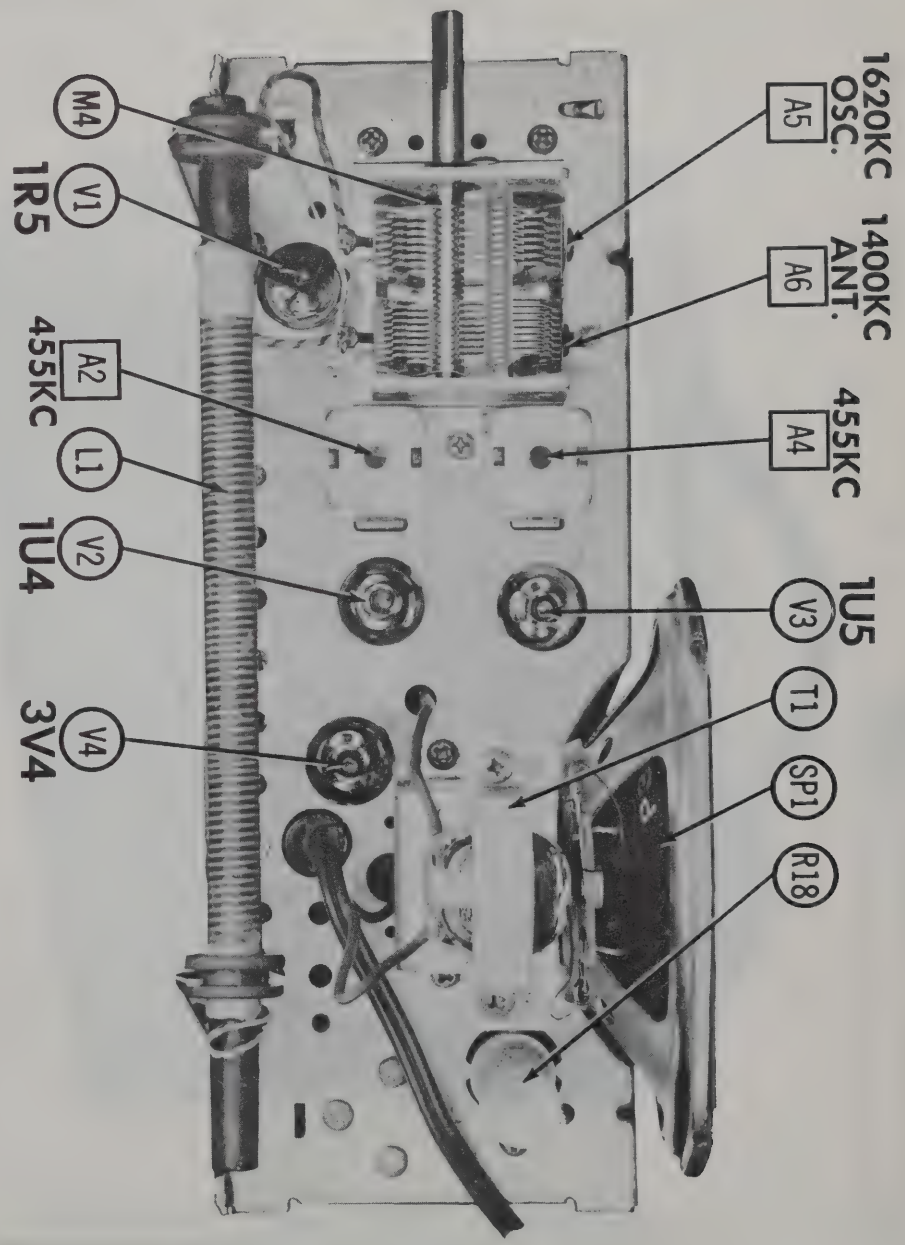
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA SENTINEL PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R2	68KΩ		27E683K-½	BTS-68K	
R3	470KΩ		27E474M-½	BTS-470K	
R4	6800Ω		27E682K-½	BTS-6800	
R5	470Ω		27E471K-½	BTS-470	
R6	4. 7Meg		27E475M-½	BTS-4. 7Meg	
R7	4. 7Meg		27E475M-½	BTS-4. 7Meg	
R8	1Meg		27E105M-½	BTS-1Meg	
R9	270Ω		27E271K-½	BTS-270	
R10	330Ω		27E331K-½	BTS-330	
R11	150KΩ		27E154M-½	BTS-150K	
R12	4. 7Meg		27E475M-½	BTS-4. 7Meg	
R13	1Meg		27E105M-½	BTS-1Meg	
R14	120KΩ			BTS-120K	Note 1
R15	4. 7Meg		27E475M-½	BTS-4. 7Meg	
R16	2. 2Meg		27E225M-½	BTS-2. 2Meg	
R17	33Ω		27E330K-½	BTS-33Ω	
R18A	610Ω	3	27E1020		
B	1550Ω	4			
R19	68Ω	1	27E680K-1	BTA-68	

Note 1. Some versions use a 100KΩ ½W resistor in this application (Part No. 27E104M-½).

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	SENTINEL PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	12KΩ	3-4Ω	22E87-2	Z1117 ①	A-2999		24S54 ①	S-11X	① Drill new mounting holes.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	SENTINEL PART No.	QUAM PART No.	RCA TYPE No.	
SP1	5"	PM	3-4Ω	1E54	5A07	205S2	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	SENTINEL PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Stick	.6Ω		64E36-3				
L2	Osc. Coil	2.3Ω	10.5Ω	20E913		BC-394		
L3	Input IF	20Ω	20Ω	20E825	16-6758	BC-352	12-C1	
L4	Output IF	20Ω	20Ω	20E825	16-6758	BC-353	12-C2	

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	SENTINEL PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	
M1	.060A	57E15	1003A	RS075	6S75	5M4	75	

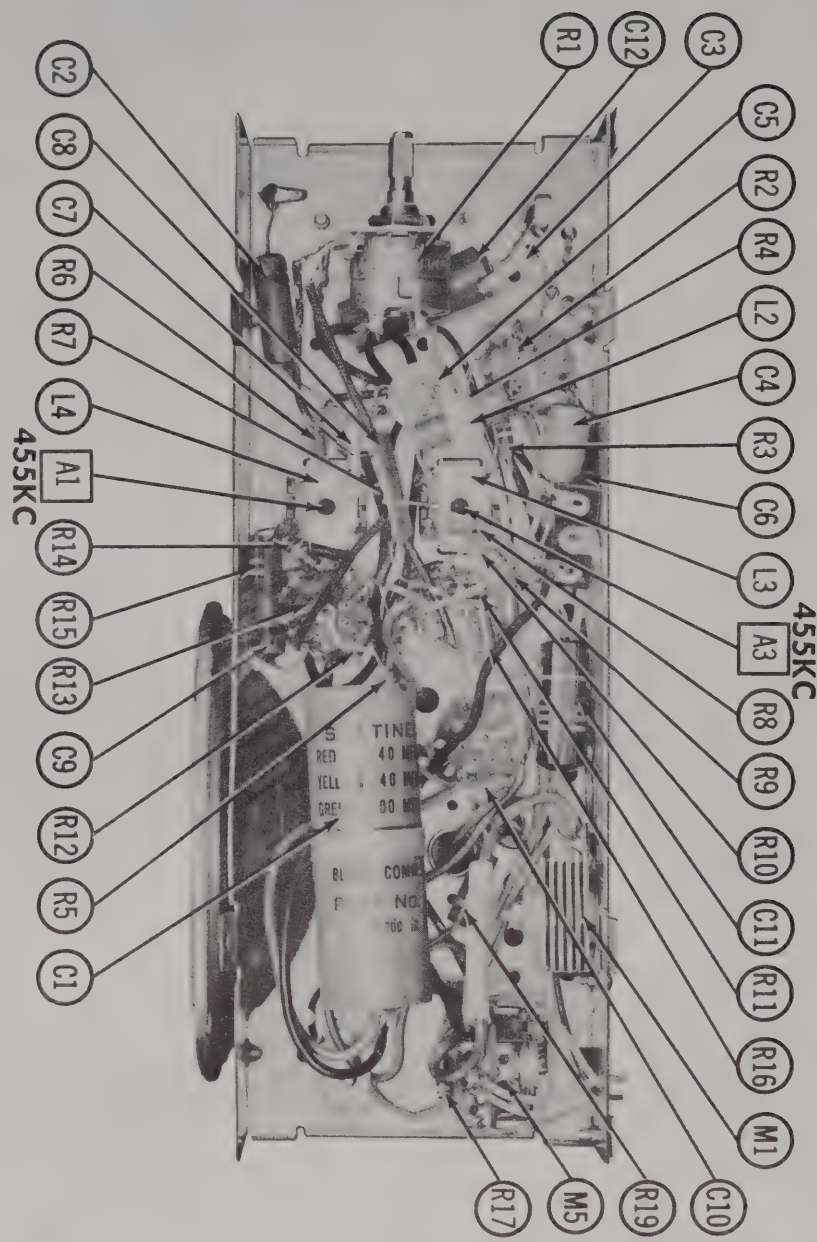
BATTERIES

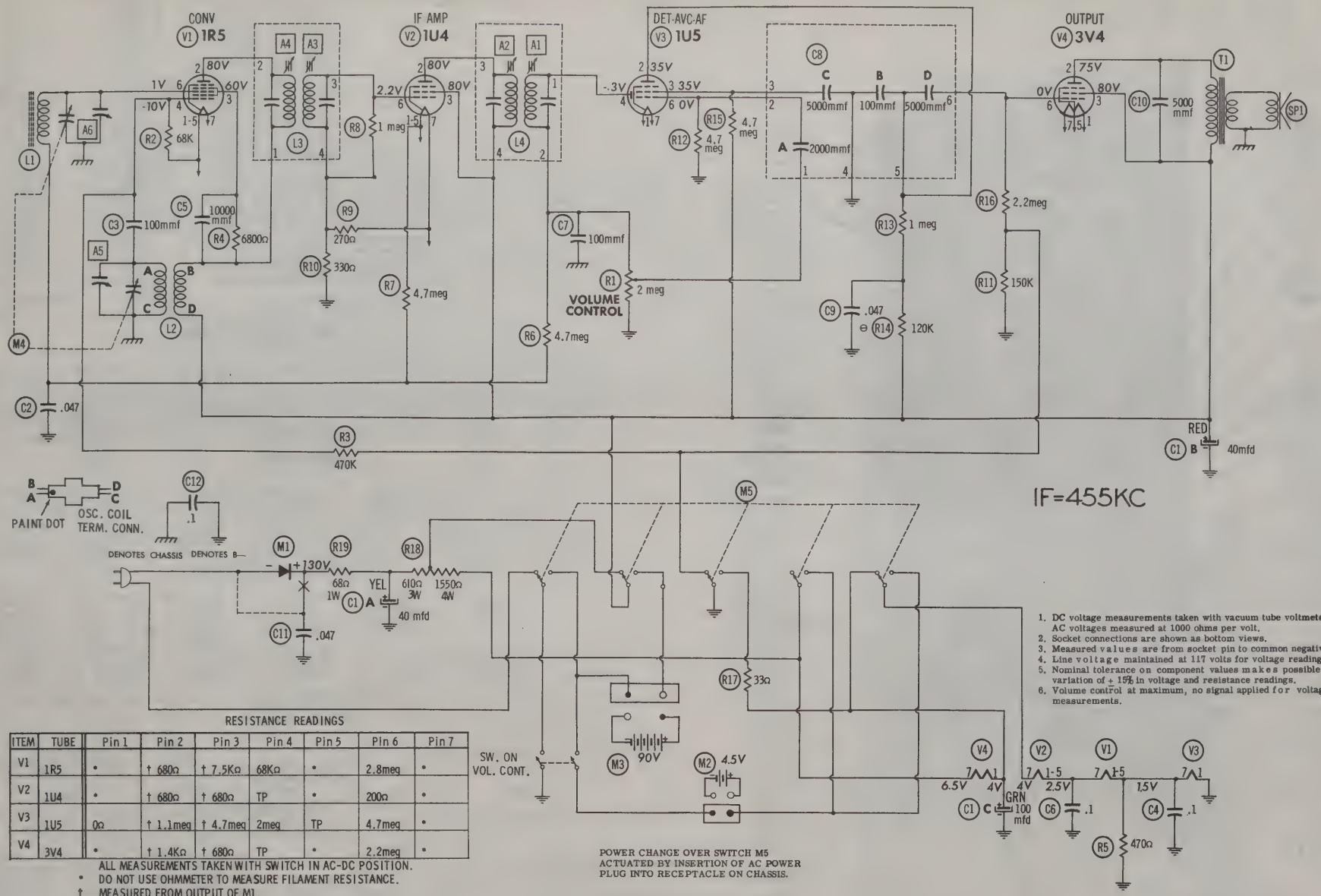
ITEM No.	VOLTAGE	SENTINEL PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M2	4.5V "A"		736			F-3			
M3	90V "B"			490			N-60		

MISCELLANEOUS

ITEM No.	PART NAME	SENTINEL PART No.	NOTES
M4	Tuning Cap.	24E63	2 Gang (12-235MMF, 13-105MMF)
M5	Switch	29E20	Power Changeover (5 Pole-2 Postion, Rotary, Wafer Type)
	Cabinet	20E916	Ivory, Includes handle and cabinet back
	Cabinet	20E916-2	Green, includes handle and cabinet back
	Cabinet	20E916-3	Mahogany, includes handle and cabinet back
	Cabinet	20E916-4	Ebony, includes handle and cabinet back
	Cabinet	20E916-5	Tan, includes handle and cabinet back
	Cabinet	20E916-6	Rust, includes handle and cabinet back
	Cabinet	20E916-7	Red, includes handle and cabinet back
	Knob	37E73-5	Ivory, on-off-volume
	Knob	37E73-4	Green, on-off-volume
	Knob	37E73-12	Mahogany-on-off-volume
	Knob	37E73-7	Ebony, on-off-volume
	Knob	37E73-3	Tan, on-off-volume
	Knob	37E73-15	Rust, on-off-volume
	Knob	37E73-16	Red, on-off-volume
	Knob	35E37	Ivory, Dial Indicator
	Knob	35E37-2	Green, Dial Indicator
	Knob	35E37-3	Mahogany, Dial Indicator
	Knob	35E37-4	Ebony, Dial Indicator
	Knob	35E37-5	Tan, Dial Indicator
	Knob	35E37-6	Rust, Dial Indicator
	Knob	35E37-9	Red, Dial Indicator

CHASSIS—BOTTOM VIEW





ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	1R5	•	† 680Ω	† 7.5KΩ	68KΩ	•	2.8meg	•
V2	1U4	•	† 680Ω	† 680Ω	TP	•	200Ω	•
V3	1U5	0Ω	† 1.1meg	† 4.7meg	2meg	TP	4.7meg	•
V4	3V4	•	† 1.4KΩ	† 680Ω	TP	•	2.2meg	•

RESISTANCE READINGS

ALL MEASUREMENTS TAKEN WITH SWITCH IN AC-DC POSITION.
• DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.
† MEASURED FROM OUTPUT OF M1.
NC NO CONNECTION.
TP TIE POINT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

POWER CHANGE OVER SWITCH M5 ACTUATED BY INSERTION OF AC POWER PLUG INTO RECEPTACLE ON CHASSIS.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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325-11

PHOTOFACT* Folder

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DENVER, COLORADO

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SILVERTONE MODEL 5170

TRADE NAME	Silvertone	MODELS	CHASSIS
		6170	528.37700, 528.37701
		6170, 6172	528.37702
		6126	528.38200, 528.38201
		6110	528.38202
		6110, 6126	528.38203, 528.38204, 528.38205
		6128, 6130, 6190, 6192	528.38400, 528.38401
		6114, 6116	528.38402
		6114, 6116, 6128, 6130, 6190, 6192	528.38403, 528.38404
		6100	528.38800, 528.38801
		6106, 6108	528.39000, 528.39001, 528.39002
		6120	528.39100, 528.39101, 528.39102
		5160, 5170	528.39200
		6192A	528.45100 & Radio Ch.528.40300
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan Ave., Chicago, Illinois		
TYPE SET	Television Receiver		
TUBES	Sixteen		
POWER SUPPLY	110-120 Volts AC-60 Cycle	RATING 1.2 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13, Video IF 26.25MC, Sound IF 21.75MC (Intercarrier)		

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Schematic (TV) 2

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Tube Placement Chart (Top View) 5

FOR SERVICE INFORMATION ON RADIO CHASSIS 528.40300, SEE PHOTOFACT SET 288, FOLDER 8

SILVERTONE MODELS 5160, 5170, 6100, 6106, 6108, 6110, 6114, 6116, 6120, 6126, 6128, 6130, 6170, 6172, 6190, 6192, 6192A (Ch. 528.37700, 1, 2, 528.38200, 1, 2, 3, 4, 5, 528.38400, 1, 2, 3, 4, 528.38800, 1, 528.39000, 1, 2, 528.39100, 1, 2, 528.39200, 528.45100 & Radio Chassis 528.40300)

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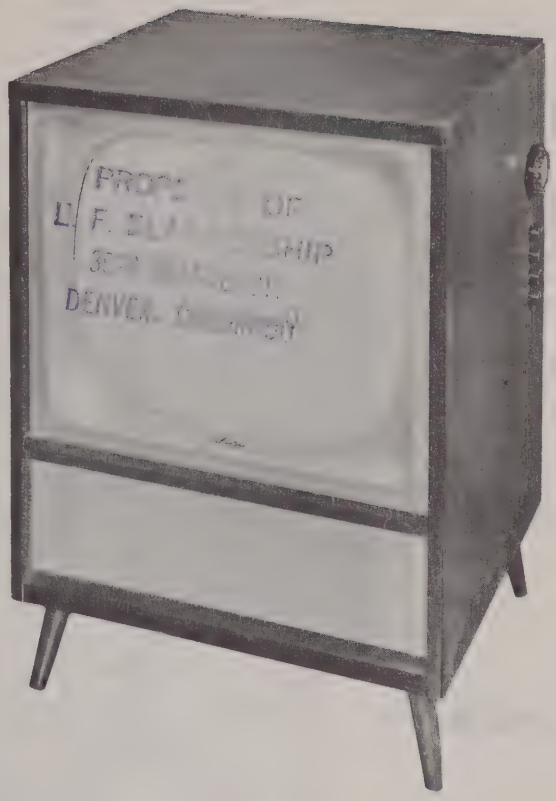

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 6 push-on type control knobs from side panel of cabinet.

2. Remove 11 wood screws. Remove rear cover.

3. Remove picture tube socket, yoke plug, HV lead and speaker leads.

4. Remove 2 wood screws holding AC interlock bracket and 2 wood screws holding antenna terminal bracket.

5. Remove 2 hex nuts holding chassis to cabinet. Remove chassis by lifting up slightly and pulling straight out.

6. Remove 8 speaker nuts. Remove 2 speaker.

MODEL	CHASSIS
5170	528.39200

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF tuner oscillator circuit may be accomplished by removing the channel selector and fine tuning knobs.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 5 wood screws holding metal molding at the top edge of the safety glass. Remove metal molding and safety glass. Use extreme caution when removing safety glass.

SERVICE ADJUSTMENT LOCATION

See tube placement chart on page 5.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to the chassis. Adjustment is located on top of the chassis. Set the horizontal hold control at the center of its range and adjust the horizontal frequency slug (L15) until the picture synchronizes horizontally.

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (L14) located on top of the chassis.

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube, located flush against the deflection yoke. Rotate the two rings around the neck of the tube until the picture is properly centered.

SILVERTONE MODELS 5160, 5170, 6100, 6106, 6108, 6110, 6114, 6116, 6120, 6126, 6128, 6130, 6170, 6172, 6190, 6192, 6192A (Ch. 528.37700, 1, 2, 528.38200, 1, 2, 3, 4, 5, 528.38400, 1, 2, 3, 4, 528.38800, 1, 528.39000, 1, 2, 528.39100, 1, 2, 528.39200, 528.45100 & Radio Chassis 528.40300)

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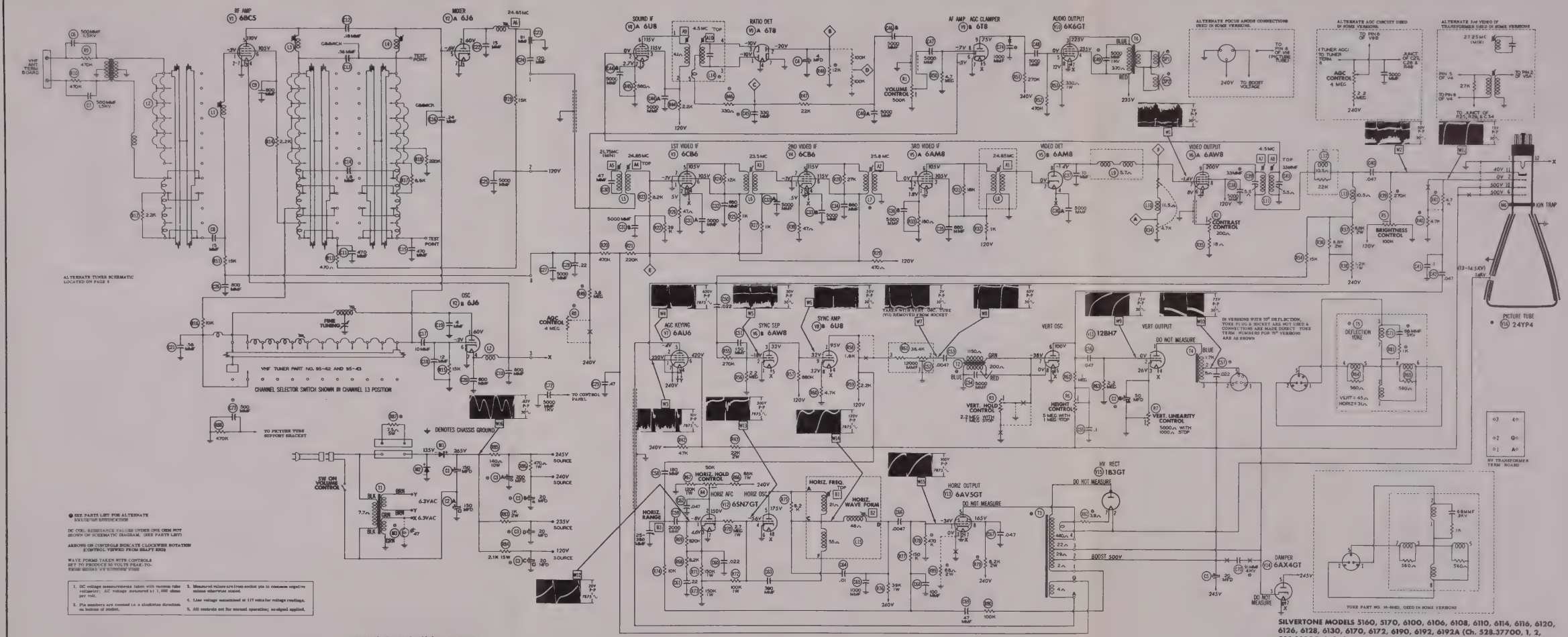
RF AMP V1 6BC5
MIXER V2 A 6J6
SOUND IF V8 A 6U8
RATIO DET V9 A 6T8
AF AMP AGC CLAMPER V9 B 6T8
AUDIO OUTPUT V10 6K6GT
1ST VIDEO IF V3 6CB6
2ND VIDEO IF V4 6CB6
3RD VIDEO IF V5 A 6AM8
VIDEO DET V5 B 6AM8
VIDEO OUTPUT V6 A 6AW8
OSC V2 B 6J6
AGC KEYING V7 6AU6
SYNC SEP V6 B 6AW8
SYNC AMP V8 B 6U8
VERT OSC V11 12BH7
VERT OUTPUT
HORIZ AFC
HORIZ OSC V12 6SN7GT
HORIZ OUTPUT V13 6AV5GT
HV RECT V15 1B3GT
DAMPER V14 6AX4GT
PICTURE TUBE V16 24YP4
ION TRAP
VOLUME CONTROL 500K
CONTRAST CONTROL 200K
BRIGHTNESS CONTROL 100K
HEIGHT CONTROL 5 MEG WITH 1 MEG STOP
VERT. LINEARITY CONTROL 5000Ω WITH 1000Ω STOP
HORIZ. HOLD CONTROL 50K
HORIZ. RANGE
HORIZ. FREQ.
HORIZ. WAVE FORM
AGC CONTROL 4 MEG
FINE TUNING
VERT. HOLD CONTROL 2.2 MEG WITH 1 MEG STOP
DEFLECTION YOKE
ALTERNATE TUNER SCHEMATIC LOCATED ON PAGE 6
VHF TUNER PART NO. 95-42 AND 95-43
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
TO PICTURE TUBE SUPPORT BRACKET
TO CONTROL PANEL
DENOTES CHASSIS GROUND
SW ON VOLUME CONTROL
245V SOURCE
240V SOURCE
235V SOURCE
120V SOURCE
BOOST 500V
DO NOT MEASURE
ALTERNATE FOCUS ANODE CONNECTIONS USED IN SOME VERSIONS
ALTERNATE AGC CIRCUIT USED IN SOME VERSIONS
ALTERNATE 3rd VIDEO IF TRANSFORMER USED IN SOME VERSIONS
IN VERSIONS WITH 70° DEFLECTION, YOKE PLUG & SOCKET ARE NOT USED & CONNECTIONS ARE MADE DIRECT. YOKE TERM. NUMBERS FOR 70° VERSIONS ARE AS SHOWN
YOKE PART NO. 30-8482, USED IN SOME VERSIONS
RF TRANSFORMER TERM. BOARD
● SEE PARTS LIST FOR ALTERNATE RESISTOR VALUES
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM. (SEE PARTS LIST)
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK RMS AC SCANNING TONE
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction as bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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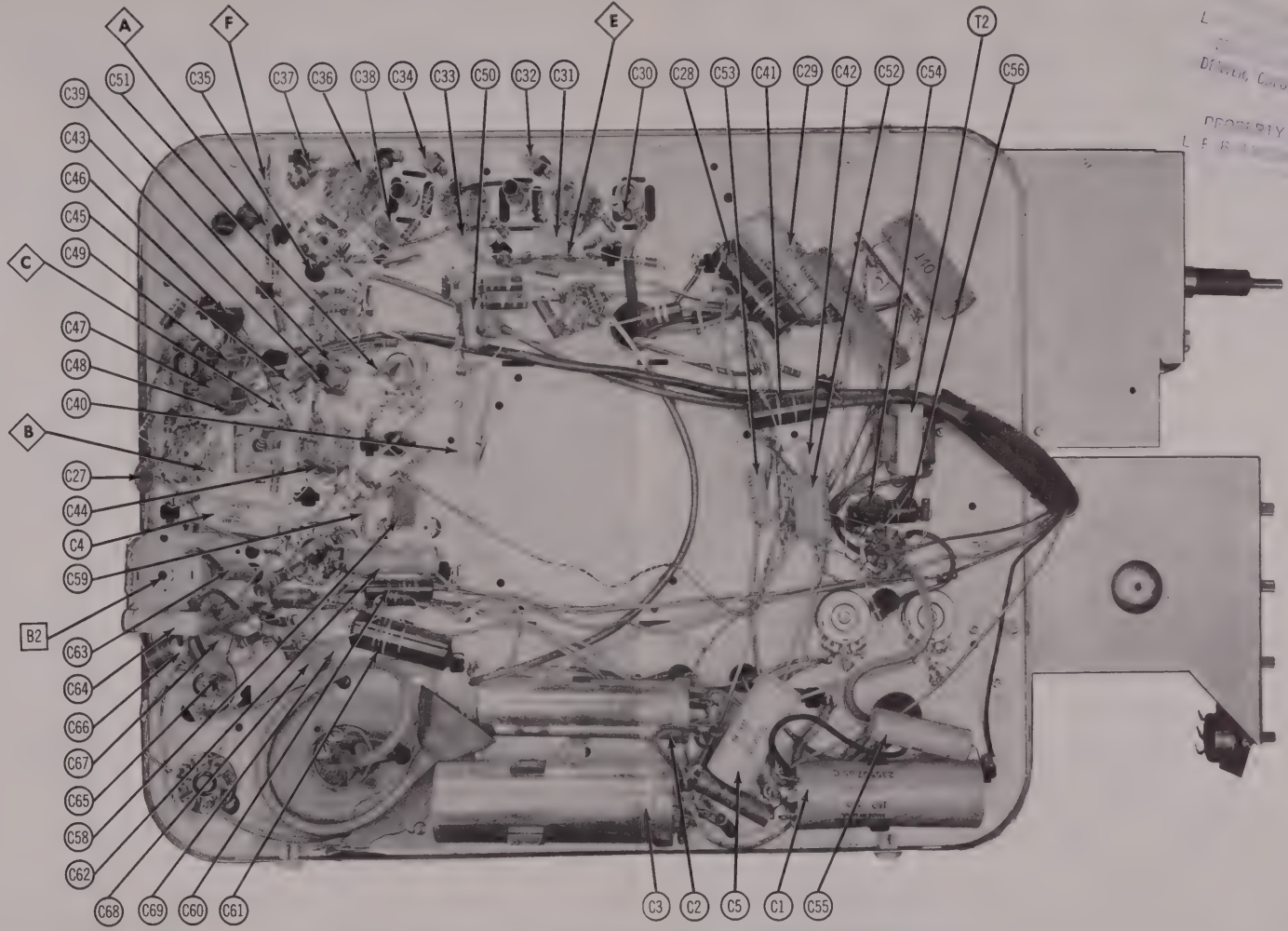
SILVERTONE MODELS 5160, 5170, 6100, 6106, 6108, 6110, 6114, 6116, 6120, 6126, 6128, 6130, 6170, 6172, 6190, 6192, 6192A (Ch. 528.37700, 1, 2, 528.38200, 1, 2, 3, 4, 5, 528.38400, 1, 2, 3, 4, 528.38800, 1, 528.39000, 1, 2, 528.39100, 1, 2, 528.39200, 528.45100 & Radio Chassis 528.40300)

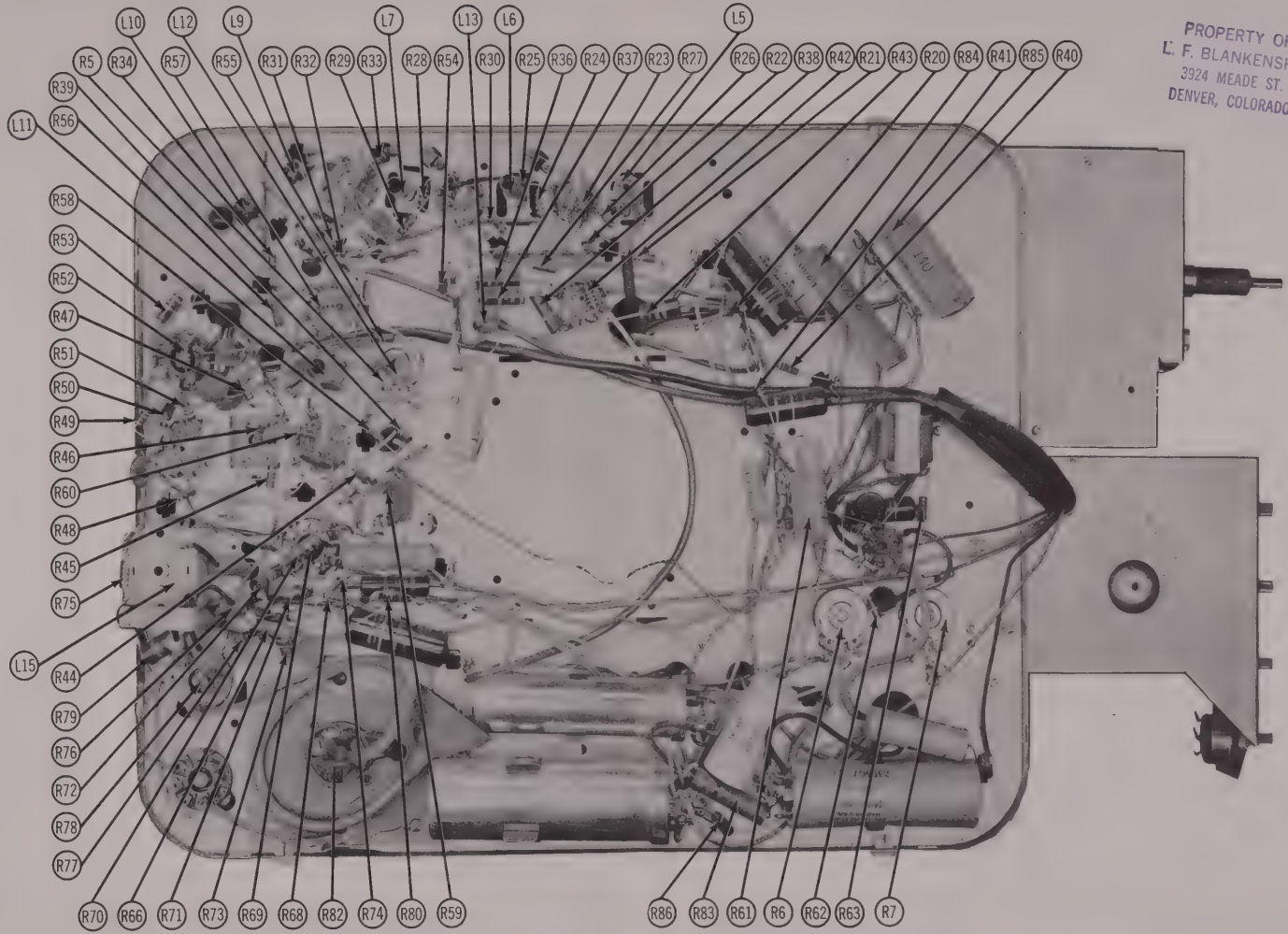
SILVERTONE MODELS 5160, 5170, 6100, 6106, 6108, 6110, 6114, 6116, 6120, 6126, 6128, 6130, 6170, 6172, 6190, 6192, 6192A (Ch. 528.37700, 1, 2, 528.38200, 1, 2, 3, 4, 5, 528.38400, 1, 2, 3, 4, 528.38800, 1, 528.39000, 1, 2, 528.39100, 1, 2, 528.39200, 528.45100 & Radio Chassis 528.40300)



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

SILVERTONE MODELS 5160, 5170, 6100, 6106, 6108, 6110, 6114, 6116, 6120, 6126, 6128, 6130, 6170, 6172, 6190, 6192, 6192A (Ch. 528.37700, 1, 2, 528.38300, 1, 2, 3, 4, 5, 528.38400, 1, 2, 3, 4, 528.38600, 1, 528.39000, 1, 2, 528.39100, 1, 2, 528.39200, 528.45100 & Radio Chassis 528.40300)

SET 325 FOLDER 12

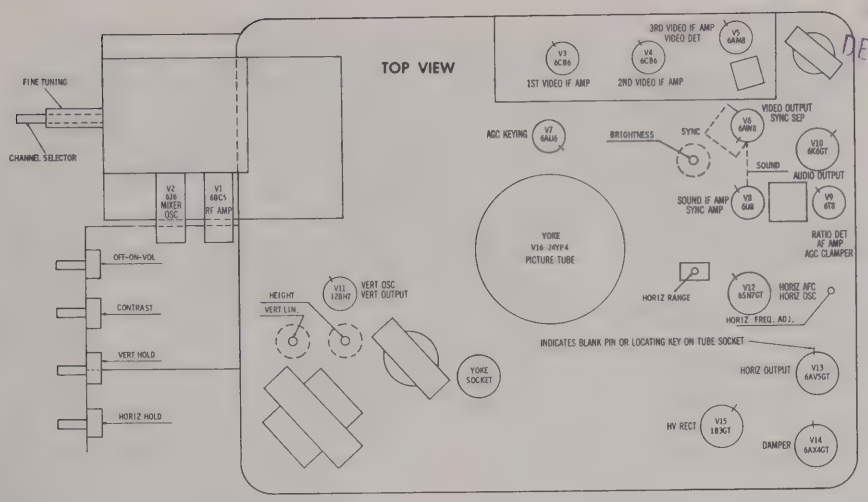


CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

SILVERTONE MODELS 51140, 51170, 61100, 61106, 61108, 61110, 61114, 61116, 61120, 61124, 61125, 61130, 61170, 61172, 61190, 61192, 61924 (Ch. 528.37700, 1, 2, 528.38200, 1, 2, 3, 4, 5, 528.38400, 1, 2, 3, 528.38800, 1, 528.39000, 1, 2, 528.39100, 1, 2, 528.39200, 528.45100 & Radio Chassis 528.40300)

TUBE PLACEMENT CHART

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST
DENVER, COLORADO



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

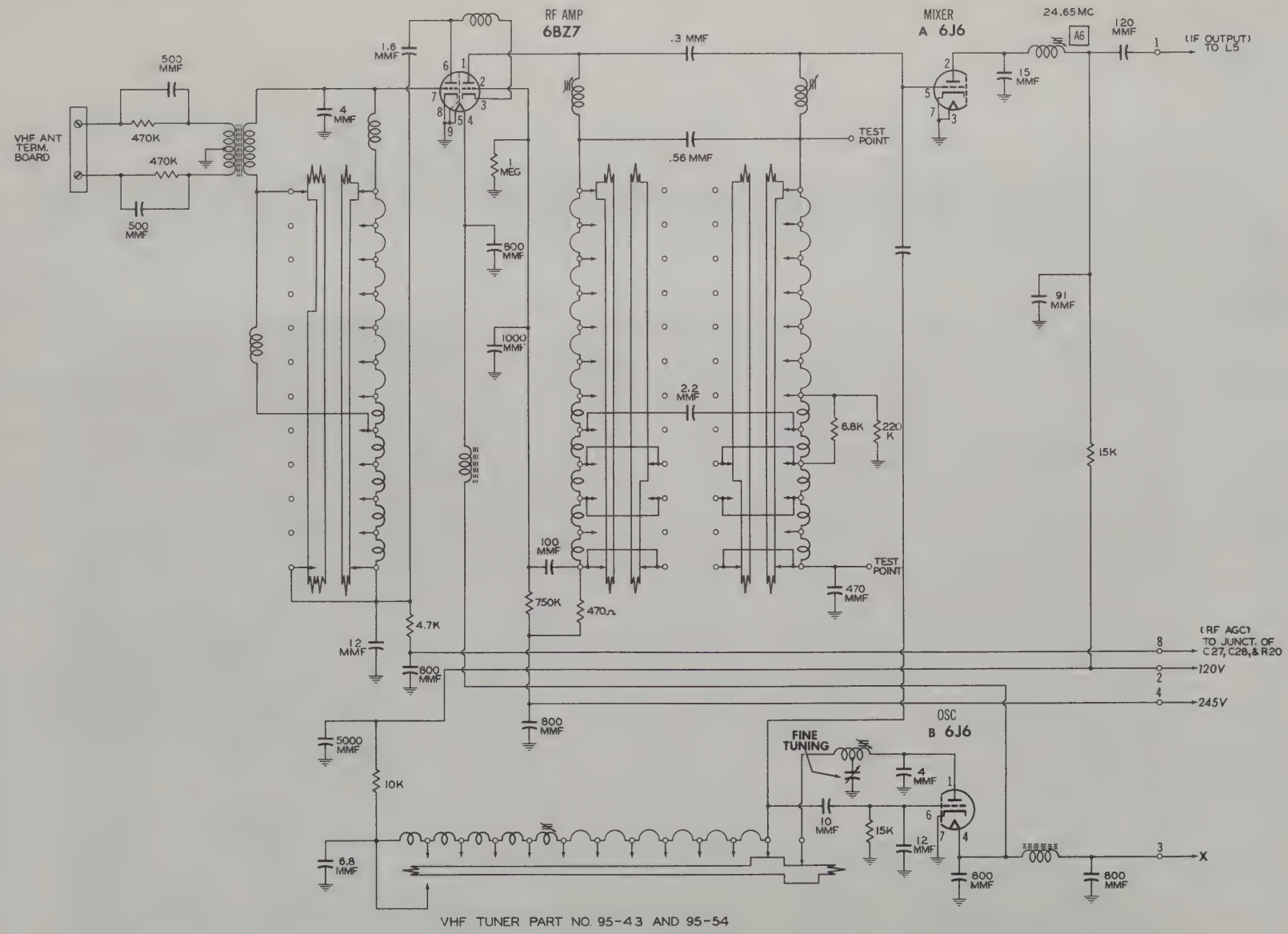
POWER SUPPLY FAILURE
No raster, no sound - **Selenium Rectifiers (M1 & M2)**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V2, V3, V4, V5, V6**
No pic, no sound, has snow - **V1, V2, V3**
No pic, has sound, has raster - **V6, V7, V16**
Has pic, no sound - **V8, V9, V10**
Overloaded picture - **V7, V9**

SYNC FAILURE
No vert. sync - **V8, V11**
No horiz. sync - **V8, V12**
No vert. or horiz. sync - **V6, V8**

SWEEP FAILURE
No raster, has sound - **V12, V13, V14, V15**
No vertical deflection - **V11**
Poor vert. linearity or foldover - **V11**
Poor horiz. linearity or foldover - **V12, V13, V14**
Narrow picture - **V12, V13, V14, V15, M1, M2**
Vert. off freq. - **V8, V11**
Horiz. off freq. - **V8, V12**

SILVERTONE MODELS 5160, 5170, 6100, 6106, 6108, 6110, 6114, 6116, 6120, 6126, 6128, 6130, 6170, 6172, 6190, 6192, 6192A (Ch. 528.37700, 1, 2, 528.38200, 1, 2, 3, 4, 5, 528.38400, 1, 2, 3, 4, 528.38800, 1, 528.39000, 1, 2, 528.39100, 1, 2, 528.39200, 528.45100 & Radio Chassis 528.40300)



VHF TUNER PART NO. 95-43 AND 95-54

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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ALTERNATE TUNER SCHEMATIC

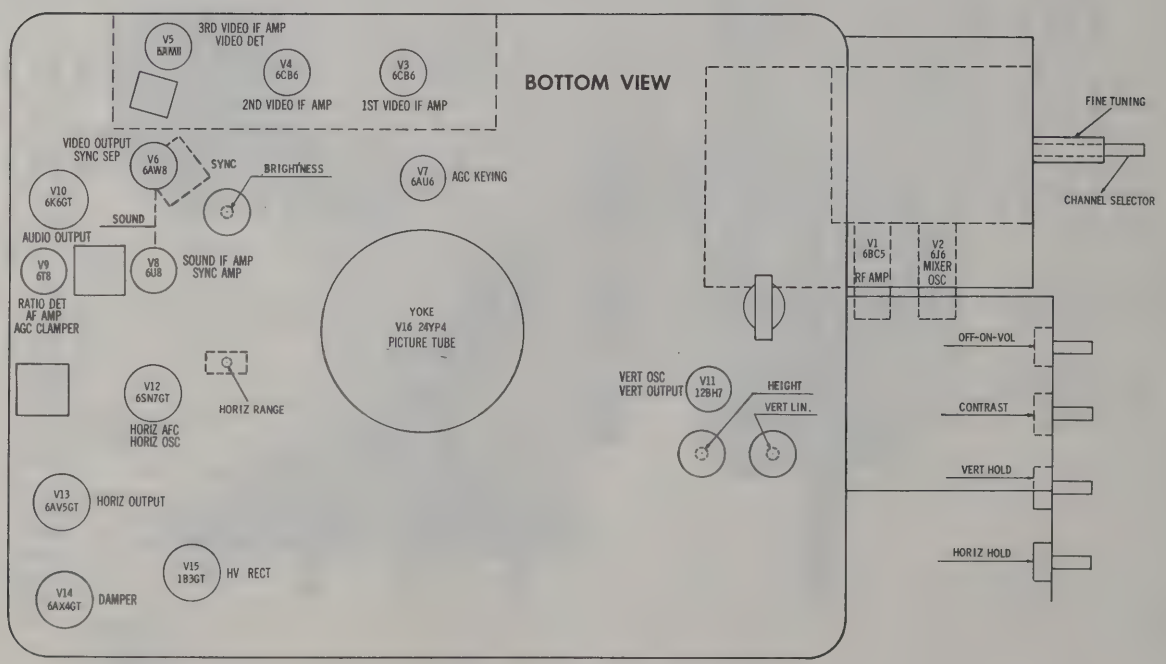
CHASSIS TOP VIEW

SILVERTONE MODELS 5160, 5170, 6100, 6106, 6108, 6110, 6114, 6116, 6120, 6126, 6128, 6130, 6170, 6172, 6190, 6192, 6192A (Ch. 528.37700, 1, 2, 528.38200, 1, 2, 3, 4, 5, 528.38400, 1, 2, 3, 4, 528.38800, 1, 528.39000, 1, 2, 528.39100, 1, 2, 528.39200, 528.45100 & Radio Chassis 528.40300)

RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	600KΩ	0Ω	0Ω	.1Ω	† 2.6KΩ	† 4.8KΩ	0Ω		
V 2	6J6	† 12KΩ	† 17KΩ	0Ω	.1Ω	220KΩ	15KΩ	0Ω		
V 3	6CB6	47KΩ	47Ω	0Ω	.1Ω	† 3.6KΩ	† 3.6KΩ	0Ω		
V 4	6CB6	40KΩ	47Ω	0Ω	.1Ω	† 2.6KΩ	† 2.6KΩ	0Ω		
V 5	6AM8	180Ω	.3Ω	† 3.1KΩ	.1Ω	0Ω	† 3.1KΩ	.3Ω	4.7KΩ	0Ω
V 6	6AW8	0Ω	2.2Meg	† 680KΩ	0Ω	.1Ω	75Ω	4.7KΩ	† 2.1KΩ	† 5.2KΩ
V 7	6AU6	† 1.8KΩ	† 600Ω	† 600Ω	† 600Ω	250KΩ	▲ 22KΩ	† 600Ω		
V 8	6U8	† 6KΩ	5.5Ω	† 4.3KΩ	.1Ω	0Ω	† 4.3KΩ	560Ω	4.7KΩ	† 680KΩ
V 9	6T8	INF	12KΩ	INF	0Ω	.1Ω	600KΩ	0Ω	4.7Meg	† 270KΩ
V 10	6K6GT	NC	0Ω	† 1.4KΩ	† 1KΩ	470KΩ	TP	.1Ω	330Ω	
V 11	12BH7	▲ 1.7KΩ	2.2Meg	2.5KΩ	.1Ω	.1Ω	▲ 3Meg	1.2Meg	200Ω	0Ω
V 12	6SN7GT	800KΩ	† 50KΩ	300KΩ	250KΩ	† 40KΩ	0Ω	0Ω	.1Ω	
V 13	6AV5GT	470KΩ	0Ω	0Ω	NC	▲ 22Ω	NC	.1Ω	† 8.5KΩ	
V 14	6AX4GT	NC	NC	80KΩ	NC	† 140Ω	NC	.1Ω	0Ω	
V 15	1B3GT		PINS	1-8	HAVE	INF	RESISTANCE			TOP CAP ▲ 482Ω
V 16	24YP4	0Ω	4.7KΩ	PIN 6 ▲ 14Ω	PIN 10 ▲ 14Ω	PIN 11 † 300KΩ	PIN 12 .1Ω			

† MEASURED FROM OUTPUT OF M2.
▲ MEASURED FROM PIN 3 OF V14.
TP-TIE POINT.
NC-NO CONNECTION.



TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use an isolation transformer to protect the test equipment.
The high voltage lead should be securely taped away from the chassis. Do not remove the horizontal oscillator tube (V12) to disable the high voltage.

VIDEO IF ALIGNMENT

Connect the negative lead of a 4.5 volt bias supply to point (E). Connect the positive lead to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over converter tube. Low side to chassis.	24.65MC (Unmod.)	Any non-interfering channel	DC probe to point (A). Common to chassis.	A1	Attenuate generator output to maintain not more than -2.5 volts on VTVM. Adjust for maximum deflection.
2.	"	"	25.8MC	"	"	A2	"
3.	"	"	23.5MC	"	"	A3	Attenuate generator output to maintain not more than -2.5 volts on VTVM. Adjust for maximum deflection. Detune A6.
4.	"	"	24.65MC	"	"	A4	Attenuate generator output to maintain not more than -2.5 volts on VTVM. Adjust for maximum deflection.
5.	"	"	21.75MC	"	"	A5	Adjust A5 for MINIMUM deflection. Repeat steps 4 and 5.
6.	"	"	24.65MC	"	"	A6	Adjust for maximum deflection.

OVERALL VIDEO IF RESPONSE CHECK

Attenuate sweep generator output to maintain 2 volts peak to peak on the scope (-.3 volts on VTVM at point (A)). If a separate marker generator is used, loosely couple it to the sweep generator output cable near the ungrounded converter tube shield.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Direct	High side to an ungrounded tube shield floating over converter tube. Low side to chassis.	24.0MC (10MC Swp.)	21.75MC 23.25MC 23.5MC 24.65MC 25.8MC 26.25MC	Any non-interfering channel	Vert. amp. thru 10KΩ to point (A). Low side to chassis.		Check for response curve similar to Fig. 1. If necessary, retouch A1 thru A4 and A6 to obtain desired response. To view trap notch increase generator output and use high scope gain. If necessary, retouch A5 to place 21.75MC marker in trap notch.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (±1%) resistors in series from point (B) to chassis. The junction of these two resistors if alignment point (D) as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8.	.001MFD	High side to point (F). Low side to chassis.	4.5MC (Unmod.)	Any	DC probe to point (B). Common to chassis.	A7, A8, A9	Adjust for maximum deflection.
9.	"	"	"	"	DC probe to point (C). Common to point (D).	A10	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	.001MFD	High side to point (F). Low side to chassis.	4.5MC (450KC Swp.)	4.5MC	Any	Vert. amp. to point (B). Low side to chassis.	A7, A8, A9	Disconnect stabilizing capacitor (C4). Adjust for curve of maximum amplitude and symmetry similar to Fig. 2.
9.	"	"	"	"	"	Vert. amp. to point (C). Low side to chassis.	A10	Reconnect C4. Adjust so that 4.5MC occurs at center of crossover lines as in Fig. 3. SLIGHTLY retouch A9 for maximum amplitude and straightness of crossover lines.

TUNER ALIGNMENT

The RF and Mixer portion of this receiver have been properly aligned at the factory and are very stable. Alignment of this portion should not be required in the field.

4.5MC TRAP ALIGNMENT

Tune in a local TV station and inspect the picture for evidence of 4.5MC beat interference. If necessary, adjust A7 until the horizontal scanning lines are smooth and continuous.

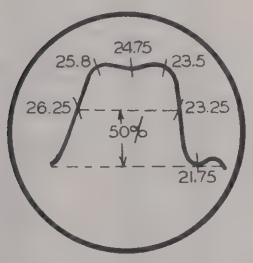


FIG. 1

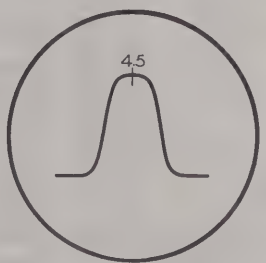


FIG. 2

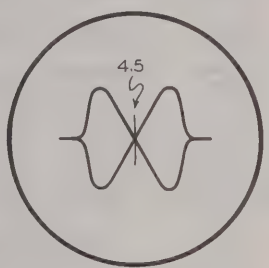


FIG. 3

SILVERTONE MODELS 5160, 5170, 6100, 6106, 6108, 6110, 6114, 6116, 6120, 6126, 6128, 6130, 6170, 6172, 6190, 6192, 6192A (Ch. 528.37700, 1, 2, 528.38200, 1, 2, 3, 4, 5, 528.38400, 1, 2, 3, 4, 528.38800, 1, 528.39000, 1, 2, 528.39100, 1, 2, 528.39200, 528.45100 & Radio Chassis 528.40300)

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	RF Amplifier	6BC5	
V2	Mixer-Oscillator	6J8	
V3	1st. Video IF Amplifier	6CB6	
V4	2nd. Video IF Amplifier	6CB6	
V5	3rd. Video IF Amplifier- Video Detector	6AM8	
V6	Video Output-Sync Separator	6AW8	
V7	AGC Keying	6AU6	
V8	Sound IF Amp.-Sync Amp.	6U8	

ITEM No	USE	TYPE	NOTES
V9	Ratio Detector-AF Amp.- AGC Clamper	6T8	
V10	Audio Output	6KSGT	
V11	Vert. Osc.-Vert. Output	12BH7	
V12	Horiz. AFC-Horiz. Osc.	6SN7GT	
V13	Horiz. Output	6AV5GT	
V14	Damper	6AX4GT	
V15	HV Rectifier	1B3GT	

PICTURE TUBE

ITEM No	REPLACEMENT DATA				NOTES
	SILVERTONE PART No	CBS PART No	GENERAL ELECTRIC PART No	SYLVANIA PART No	
V16	24YP4 ① 21AVP4 21AVP4A ①	24YP4 ① 21AVP4 21AVP4A ①	24YP4 ①	24YP4 ① 21AVP4A, B ①	① Aluminized ② Silver screen "85"
	21EXP4 17HP4B ①	21EXP4 21EP4A ① 17HP4B ① 17HP4 / 17RP4	21EXP4 21EP4A ① 17HP4B ① 17HP4, 17RP4	21EXP4 21EXP4A ① 17HP4B ① 17HP4, 17RP4	

ELECTROLYTIC CAPACITORS

ITEM No	RATING		REPLACEMENT DATA						NOTES
	CAP	VOLT	SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	150	150	18-323	AFH81-70	XA004	FPU17	TM-150-150	T-050	TVL-1428
C2A	⌀150	150	18-323	E3B387	XA004	FPU17	TM-150-150	T-050	TVL-1428
B	⌀50	50	(Note 1)		BR505	TC39	TD-50-50	FM-0350	TVA-1308
C3A	⌀300	300	18-330 (Note 2)	AFH4-02-90		FP419.54	TM-4121	S-200	H1656
B	⌀20	300	(Note 2)					T-100	
C	⌀30	300	(Note 2)						
D	20	300	(Note 2)						
C4	4	50	18-321		BRE50Y5	BR550	TC30	TD-4-50	MKT-0505	TVA-1303
C5	20	300	18-333		PR8450V30	BR2035	TC65	TD-20-WH	FM-4520	TVA-1606

Note 1. Some versions may use 100MFD in this application (C2 part #18-372).
Note 2. Some versions may use a 100-20-20-30MFD unit (part #18-333) or a 100-20-40-20MFD (part #18-346) in this application.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C6	800	1500	T18-304	HVD-15-470	DD50-501	MC7470	1R5KV-471	DC30347	10GA-T47	
C7	500	1500	T18-304	HVD-15-470	DD50-501	MC7470	1R5KV-471	DC30347	10GA-T47	
C8	15		162-150	NPO-S11S	TC2-15	Z021	NP0K-150		5TCC-Q15	
C9	800		2033-2	BPD-0008	DD-801	C067	831-801		5GA-T9	
C10	800		2033-2	BPD-0008	DD-801	C067	831-801		5GA-T9	
C11	470		136-1							
C12	.18		2101-188							
C13	.56		2101-568							
C14	1.8		2101-189							
C15	470		136-1							
C16	.24		2101-248							
C17	10		166-100	N750-S110	TCN-10	TN01	N750A-100	NT-541	5TCU-Q1	
C18	12		162-120		TC2-12	TE10	NP0K-120			
C19	1		165-409							
C20	800		2033-2	BPD-0008	DD-801	C067	831-801		5GA-T9	
C21	.56		2101-568							
C22	15		162-150	NPO-S11S	TC2-15	TE11	NP0K-150		5TCC-Q15	
C23	91		209-910							
C24	120		139-121	DI-0001S	DD-121	C044	811-121	UC-5313	5GA-T13	
C25	5000		2033-7	BPD-005	DD-502	E040	811-005	DC-535	5HK-D5	
C26	800		2033-2	BPD-0008	DD-801	C067	831-801		5GA-T9	
C27	5000		18-320	BPD-005	DD-502	E040	811-005	DC-535	5HK-D5	
C28	22	200	18-253	P288N-22		CU2BP22		PT6042	2TM-P22	
C29	47	200	18-340	P288N-47		CU2BP47		PT6047	2TM-P47	
C30	47			NPO-S147	TCZ-47	TCZ8	NPO-338-470	ZT-5447	5TCC-Q47	
C31A	5000		18-294	BPD-2X0047	DD2-502	DE079	811-005	DC-535	5HK-ED47	
B	5000						811-005	DC-535		
C32	580		18-320	BPD-0006	DD-581	E065	811-581	UC-5368	5GA-T68	
C33A	5000		18-294	BPD-2X0047	DD2-502	DE079	811-005	DC-535	5HK-ED47	
B	5000						811-005	DC-535		
C34	580		18-320	BPD-0006	DD-581	E065	811-581	UC-5368	5GA-T68	
C35	580		18-320	BPD-0006	DD-581	E065	811-581	UC-5368	5GA-T68	
C36A	5000		18-294	BPD-2X004	DD2-502	DE079	811-005	DC-535	5HK-ED47	
B	5000						811-005	DC-535		
C37	10		18-324	NP0-D110	DD-100	Z018		381-D0	MS-41	
C38	5000		18-320	BPD-005	DD-502	E080	811-005	DC-535	5HK-D5	
C39	33									
C40	.047	400	18-345	BPD-05	DF-503	CU2S647		PT4147	4TM-S47	Note 3
C41	.1	400	18-284	P468N-1	DF-104	CU1P1		PT461	4TM-P1	
C42	.047	400	18-345	BPD-06	DF-503	CU2S647		PT4147	4TM-S47	
C43	33									
C44A	5000		18-294	BPD-2X0047	DD2-502	DE079	811-005	DC-535	5HK-ED47	
B	5000						811-005	DC-535		
C45	330		18-329	N750-D2330	TCN-300	TN34	N750-333-321		5TCU-T33	Note 4
C46A	5000		18-294	BPD-2X0047	DD2-502	DE079	811-005	DC-535	5HK-ED47	
B	5000						811-005	DC-535		
C47	5000		18-320	BPD-005	DD-502	E080	811-005	DC-535	5HK-D5	
C48	5000		18-320	BPD-005	DD-502	E080	811-005	DC-535	5HK-D5	
C49	5000	1000		HVD-15-472	DD-502	VD47	1R5KV-472		10GA-D5	Note 5
C50	33	400	18-348	BPD-04	DF-303	CU2S633	817-03	PT4133	4TM-S33	
C51	150			N750-DL150	TCN-100	TN36	N750-537-151		5GS-J15	
C52	13000		117-109	TPA-S03	TPC-104				710C13	
C53	.047	600	18-333	BPD-0047	DF-503	CU3D647	GP2-333-473	PT6347	6TM-D47	
C54	5000		18-320	BPD-005	DD-502	E080	811-005	DC-535	5HK-D5	
C55	5000		18-320	BPD-005	DD-502	E080	811-005	DC-535	5HK-D5	
C56	0047	600	16-333	BPD-0047	DD-473	CU3D647	GP2-333-472	PT6347	6TM-D47	
C57	047	400	18-345	BPD-05	DF-503	CU2S647		PT4147	4TM-S47	
C58	100		18-262	N750-D100	TCN-100	N043	N750L-101	NT-531	5TCU-T1	
C59	47		18-265	N750-D47	TCN-47	N033	N750K-470	NT-5447	5TCU-Q47	
C70	01	4000	18-326							Notes 7, 8, 9
C71	68	3000		HVD-30-68	DD30-681	VS268	5KV-680	DC30468	30GA-Q68	Note 10
C72	5000	1000	18-305	HVD-15-470D	DD-503	VD47	1R5KV-473		10HK-D47	
C73	005			BPD-0006	DD-50	C061	811-501	UC-535	5GA-T5	Note 11
C74	1000		15-377	BPD-001	DD-103	E080	801-001	DC-531	5HK-D1	Note 7

† Items C53, R61A and R61B are combined in one unit.
Note 2. Some versions may use a 56MMF unit in this application.
Note 4. Some versions may use a 560MMF unit (part #18-303) in this application.
Note 5. Some versions may use a 1000MMF unit (part #18-357) in this application.
Note 6. Some versions may use a .047MFD unit (part #18-266) in this application.
Note 7. Not used in some versions
Note 8. Some versions may use a 371MMF unit (part #15-315) in this application.
Note 9. When horizontal output transformer 80-361 is used, C70 is a 39MMF unit (part #15-396).
Note 10. Some versions may use a 56MMF unit in this application.
Note 11. Some versions may use a 5000MMF unit (part #15-305) in this application.

CONTROLS

ITEM No	RATING		REPLACEMENT DATA						INSTALLATION NOTES
	RESISTANCE	WATTS	SILVERTONE PART No	CENTRALAB PART No	CLAROSTAT PART No.	IRC PART No	MALLORY PART No		
R1A	500KΩ	½	A34-531	B8K-50-S	A47-500K-Z	Q1S-135	U-52		Volume
B	Shaft		Not Req.	Not Req.	KS8-3	Not Req.	Not Req.		Attach to R1A.
C	Shaft		Not Req.	Not Req.	SWK-12	76-1	U2-52		Attach to R1A.
R2A	200Ω	½	A25-41	AB-2	A47-500-S	Q1I-201	U-2		Contrast
B	Shaft		Not Req.	AK-4	KS8-3	Not Req.	Not Req.		Attach to R2A.
R3A	2.5Meg	½	A35-50	⋆ AB-89	⋆A47-1Meg-S	⋆ Q1I-138	⋆ U-54		Vert. Hold
	with 1Meg stop								
B	Shaft		Not Req.	AK-4	KS8-3	Not Req.	Not Req.		Attach to R3A.
R4A	50KΩ	½	A25-43	AB-31	A47-50K-S	Q1I-133	U-51		Horiz. Hold
B	Shaft		Not Req.	AK-4	KS8-3	Not Req.	Not Req.		Attach to R4A.
R5A	100Ω	½	A25-40	AB-40	A47-100K-S	Q1I-139	TA1EL		Brightness
B	Shaft		Not Req.	AK-1	FKS-½	RQ	Not Req.		Attach to R5A.
R6A	5Meg with 1Meg stop	½	A35-43	⋆ AB-88	⋆A47-5Meg-S	⋆ Q1I-141	⋆ TA56L		Height
B	Shaft		Not Req.	AK-1	FKS-½	RQ	Not Req.		Attach to R6A.
R7A	5000Ω with 1000Ω stop	½	A35-53	† AB-9	†A47-5000-S	† Q1I-114	† PTA-553L		Vert. Linearity
B	Shaft		Not Req.	AK-19	KS8-3	Not Req.	Not Req.		Attach to R7A.
R8A	4Meg	½	A35-58	AB-96	A47-4Meg-S	Q1I-141	PTA56L		AGC-Note 1
B	Shaft		Not Req.	AK-19	KS8-3	Not Req.	Not Req.		Attach to R8A.

Note 1. Not used in some versions.
⋆ Connect a 1Meg resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control (control viewed from shaft end, terminals down).
† Connect a 1000Ω resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control (control viewed from shaft end, terminals down)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	SILVERTONE PART No.	IRC PART No.	
R9	470KΩ		804740M	BTS-470K	
R10	470KΩ		804740M	BTS-470K	
R11	2200Ω			BTS-16K	
R12	2200Ω				
R13	470Ω			BTS-470	
R14	2200Ω			BTS-2300	
R15	15KΩ				
R16	10KΩ			BTS-10K	
R17	6800Ω			BTS-6800	
R18	2.2MEG			BTS-2.2MEG	
R19	15KΩ				
R20	470KΩ		804740E	BTS-470K	
R21	2.2MEG		8022.2ME	BTS-2.2MEG	
R22	330KΩ		8033305	BTS-330K	
R23	39KΩ		8039305	BTS-39K	
R24	2200Ω		8022205		
R25	1000Ω		8010305	BTS-1000	
R26	47Ω		804700E	BTS-47	
R27	1000Ω		8010305	BTS-1000	
R28	27KΩ		8027305		
R29	470Ω		804700E	BTS-470	
R30	47Ω		804700E	BTS-47	
R31	18KΩ		8018305		
R32	1000Ω		8010305	BTS-1000	
R33	180Ω		8018305	BTS-180	
R34	4700Ω		8047305	BTS-4700	
R35	18Ω		8018000E	BTS-18	
R36	6800Ω	2	8068225	BTS-6800	
R37	6800Ω	2	8068225	BTS-6800	
R38	1200Ω	1	8012325	BTA-1200	
R39	270KΩ		804740M	BTS-270K	Note 1
R40	4700Ω		8047325	BTS-4700	Note 3
R41	4700Ω		8047325	BTS-4700	Note 3
R42	47KΩ		8047305	BTS-47K	
R43	22KΩ	2	8022325	BTS-22K	
R44	3200Ω		8032205	BTS-3200	
R45	560Ω		8056105	BTS-560	
R46	330Ω		8033105	BTS-330	Note 4

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	SILVERTONE PART No.	IRC PART No.	
R47	22KΩ		8022305	BTS-22K	
R48	12KΩ		8012305	BTS-12K	Note 5
R49	3.6Meg 5%		8023607	BTS-3.6Meg 5%	Note 6
R50	4.7Meg		8047505	BTS-4.7Meg	
R51	270KΩ		8027405	BTS-270K	
R52	470KΩ		8047405	BTS-470K	
R53	330Ω	1	80331K	BTA-330	
R54	15KΩ		8015305	BTS-15K	
R55	270KΩ		8037405	BTS-270K	
R56	2.2Meg		8022505	BTS-2.2Meg	
R57	680KΩ		8068405	BTS-680K	
R58	1800Ω		8018305	BTS-1800	
R59	3300Ω		8033205	BTS-3300	
R60	830KΩ		8083405	BTS-830K	
R70	2.7Meg	1	8027515		
R71	150KΩ		8015405		
R72	100KΩ	1	8010415		
R73	150KΩ	1	8015415		
R74	10KΩ		8010305	BTS-10K	
R75	8200Ω		8082305		
R76	39KΩ	1	8039315	BTA-39K	
R77	150KΩ		8015405		
R78	470KΩ		8047405		
R79	2200Ω	2	8022325		
R80	100KΩ		8010405	BTS-100K	
R81	1000Ω				Note 11
R83	3.9Ω		80-973	BW-3.9	Note 9
R83	1000Ω	3	8010328M	BTB-1000	

RESISTORS (cont)

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	SILVERTONE PART No.	IRC PART No.	
R84	2100Ω	15	61-7		
R85	140Ω	10	61-3	1.344-180	
R89	4700	1	804715K	BTA-470	
R87	7.8Ω	5	631098		Note 10
R88	470KΩ	2	8047425M	BTS-470K	
R89	68Ω	3	806850K		Note 13

Note 1. Some versions use a 220KΩ ½W resistor in this application (Part No. 8022405).
Note 2. Some versions use a 68000Ω ½W resistor in this application (Part No. 8068305K).
Note 3. Some versions use a 22KΩ ½W resistor in this application (Part No. 8022305).
Note 4. Some versions use a 3300Ω ½W resistor in this application (Part No. 8033205).
Note 5. Some versions use an 18KΩ ½W resistor in this application (Part No. 8018305).
Note 6. Some versions use a 3.9Meg 5% ½W resistor in this application. * Some other versions use a 2.2Meg 5% ½W resistor inthis application (Part No. 8039607).
Note 7. Some versions use a 270KΩ ½W resistor in this application (Part No. 8027405K).
Note 8. Some versions use a 150KΩ ½W resistor in this application (Part No. 8015305K).
Note 9. Some versions use a 2.5Ω ½W resistor in this application (Part No. 80-973).
Note 10. Alternate Part No. 631007.
Note 11. Some versions use a 820Ω ½W resistor in this application.
Note 12. Some versions use a 39Ω ½W resistor in this application (Part No. 8039010K), also these resistors are not used in some versions.
† Items R51A, R51B, C52 are combined in one unit.

TRANSFORMER (FILAMENT)

ITEM No	RATING			REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	SILVERTONE PART No	Halldorson PART No	Merit PART No.	Stancor PART No	Thordarson PART No	Triad PART No
T1	117VAC @ 54A	6.3V @ 3A	6.3V @ 7.5A		80-318					

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA							
		SILVERTONE PART No	Halldorson PART No	Merit PART No	RCA TYPE No	Ram PART No	Stancor PART No	Thordarson PART No	Triad PART No
T2	Vert. Osc. Trans.	80-317 ①	B8702 ④	A-3003 ③	209T1 ③	V405 ③	A-8135 ③	26A03 ③	A-97X ③
		80-328 ②	B8702	A-3003	209T1 ③	V405	A-8135	26A03	A-97X
T3	Horiz. Trans.	80-329 ②		HVO-40 & MWC-1 ⋆					
		80-361 ③							
T4	Vert. Output Trans.	80-325	Z1905 ③	A-3030 ③	235T1 ③	V31Z ③	A-8141 ③	26S54 ③	A-104X ③
T5A	Yoke(90°) Horiz.(20MB)	10-696A ① or 10-696 ②	DF607 ③	MDP-92 ③	235D1 ③		DY-15A ③	Y-16 ③	Y-41-J ③
B	Vert.(40MB)	10-695 ① or 10-697 ②	DF607 ③	MDP-92 ③	235D1 ③	T902T6/43 DY-15A ③		Y-16 ③	Y-41-J ③
T5A	Yoke(70°) Horiz.(24MB)	10-692 ①	DF608 ③	MDP-75 ③	222D1 ③	T902T26 ③	DY-15A ③	Y-10 ③	Y-19-J ③
B	Vert.(36MB)	10-695 ①	DF608 ③	MDP-75 ③	222D1 ③	T902T25 ③	DY-15A ③	Y-10 ③	Y-19-J ③
		10-709 ① or 10-710 ②							
		10-691 ②							

① Used in chassis 528.39300 only.
② Used in all chassis except 528.39200.
③ Drill new mounting hole(s).
④ Alternate Silvertone part number for 70° chassis 528.38304, 308, 404, 39002. When this part number is used, capacitor C70 should be 39MMF, 4KV, N1400, and resistor R69 should be 39Ω 1W.
⋆ Includes capacitor C71, resistors R84, R85, and R86. Also includes plug (Silvertone part no. 45-147) with 10-696 yokes only.
† Make connections same as those shown on schematic for 10-696A yoke.
‡ Use original horizontal yoke damping network if necessary.
Connect horizontal yoke damping network across terminals #3 and #7.
Use original rear cover and centering device.
① Used in chassis 528.37T00, 701, 702, 39000, 101, 102, 200.
② Used in chassis 528.44401, 800.
③ Used in chassis 528.38300, 301, 303, 305, 304, 306, 400, 401, 402, 403, 404, 45100.
④ Used in chassis 528.38800, 801, 39000, 001, 002.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL (CONNECTIONS)	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
4	4	4					
3	3	3					
2	2	2					
1							
A		Red Term. of MWC-1					
G		Blue Term. of MWC-1					
Connect Width Coil Across		Orange & Bl Terms. of MWC-1 Across 2 & 1					
Special Notes							

④ If AGC does not function properly, reverse width coil primary or secondary.

TRANSFORMER (AUDIO OUTPUT)

ITEM No	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	SILVERTONE PART No	Halldorson PART No	Merit PART No	Stancor PART No	Thordarson PART No	
T6	5.8KΩ	3-4Ω	80-319	21000 ①	A3026	A3078 ①	22S47	8-8X ① Drill one new mtg. hole.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	SILVERTONE PART No	QUAM PART No	RCA TYPE No.	
SP1	6½"	PM	6-8Ω	79-439	6A12S		The models covered in this folder use one, or a combination of the listed speakers.
SP2	6½"	PM	6-8Ω	79-439	6A12S		
	4"	PM	6-8Ω	79-458	4A07Z8		
	6"x 9"	PM	6-8Ω	79-454	6A32Z6		
	4"	PM	3-4Ω	79-429	4A87	233S1	
	5"	PM	3-4Ω	79-430	5A07	305S2	
	5"	PM	3-4Ω	79-435	5A87	305S2	
	6½"	PM	3-4Ω	79-433	6A1	239S1	

SILVERTONE MODELS 51A60, 51T70, 6100, 6104, 6106, 6110, 6114, 6116, 6130, 6136, 6138, 6170, 6172, 6190, 6192, 6192A (CH 528.37700), 6194, 6196, 6198, 6199, 1, 2, 3, 4, 5, 528.38400, 1, 2, 3, 4, 5, 528.38600, 1, 2, 528.39100, 1, 2, 528.39200, 528.40100 & Radio Chassis 528.40300)

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	SILVERTONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil	0Ω		1984-6				Channel 13
L2	Fil. Choke	0Ω		1785-47				
L3	RF Coil	0Ω		1984-17				Channel 13
L4	Mixer Grid Coil	0Ω		1984-18				Channel 13
L5	1st. Video IF	.3Ω		T10-670			6246	Includes 21.75MC trap
L6	2nd. Video IF	.3Ω	.3Ω	T10-672	17-1063	TV-116	6249	
L7	3rd. Video IF	.3Ω	.3Ω	T10-672	17-1064	TV-116	6250	Note 1
L8	4th. Video IF	.3Ω	.3Ω	T10-675		TV-100 *		
L9	Series Peaking Coil	5.7Ω		T10-676	19-3125		6153	120 Microhenries
L10	Shunt Peaking Coil	11.5Ω		T10-590	19-3250	TV-185	6130	269 Microhenries
L11A	4.5MC Trap	5.5Ω						
B	Sound IF	5.5Ω		T10-674				
L12	Series Peaking Coil	10.5Ω		T10-671	19-4250	TV-185 ■	6173	220 Microhenries, wound on 22KΩ resistor
L13	Shunt Peaking Coil	10.5Ω		T10-609	19-3250	TV-185	6154	220 Microhenries
L14	Ratio Det.	4.4Ω	.2ΩCT	T10-552	17-1033 ▲	TV-110 ▲	1468 ▲	Tertiary winding-.7Ω-Note 2.

* Cut out chassis hole and drill mounting holes.
■ Parallel with 22KΩ resistor.
▲ Drill mounting holes and disconnect capacitor across primary.
Note 1. Alternate part #10-720 includes 27.25MC trap used in some versions.
Note 2. Alternate part #10-689 or #10-716 used in some versions.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA							NOTES
	PRI.	SEC.	SILVERTONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	RCA TYPE No.	Ram PART No.	Thordarson PART No.	
L15	21Ω	55Ω	T10-690	20-1402 *	TV-162 *	6183 *	205R1 *	H-100 *	HS-3 *	Waveform Winding =48Ω

* Reverse coil mounting in can.

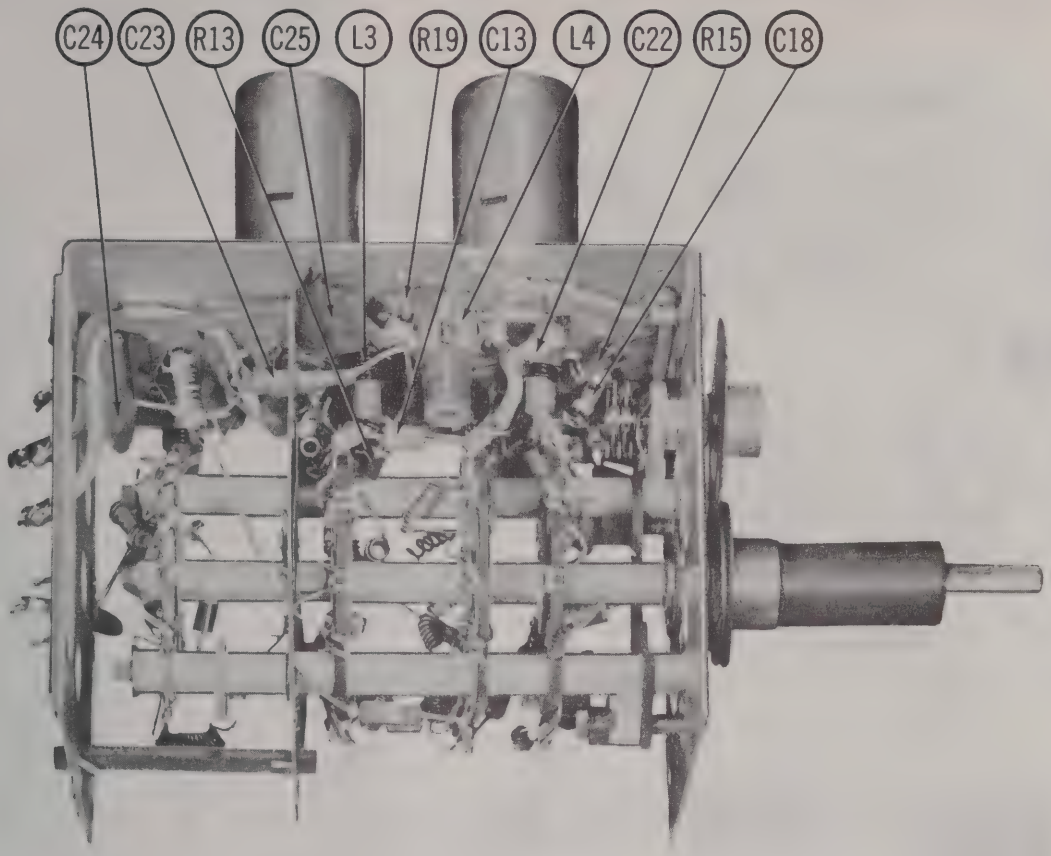
SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	SILVERTONE PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	
M1	.220ADC	83-829	1090A	MR300	6S300	6Q4	300	
M2	.220ADC	83-829	1090A	MR300	6S300	6Q4	300	

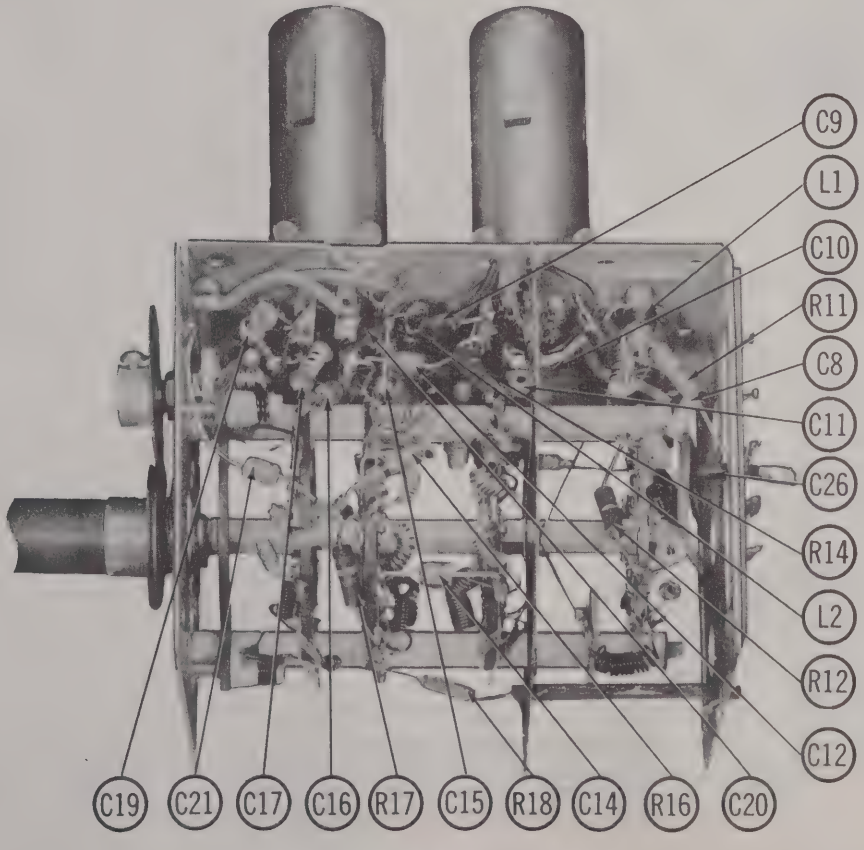
MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M3	Dial Light	89-7	#47, Not used in some versions
M4	Tuner	95-42	VHF (Pentode) Chassis 528.38200, 528.38201, 528.38202, 528.38203, 528.38204, 528.38205, 528.38800, 528.38801,528.39100, 528.39101, 528.39102, 528.39200
	Tuner	95-43	VHF (Cascode) Chassis 528.37700, 528.37701, 528.37702, 528.38400, 528.38401, 528.38402, 528.38403, 528.38404, 528.39000, 528.39001
	Tuner	95-53	VHF (Pentode) Chassis 528.38202, 528.38205, 528.44401, 528.44800
	Tuner	95-54	VHF (Cascode) Chassis 528.39001, 528.39002
M5	Centering Device	31-302	Chassis 528.37701, 528.37700, 528.39101, 528.39100, 528.39200. On chassis 528.39002, 528.38404, 528.38801, 528.38401, 528.38403, 528.38402, 528.39001, 528.39000, 528.38400, 528.38204, 528.38203, 528.38202, 528.38201, 528.38200, 528.38800, 528.44401, 528.44800, 528.38205 centering device is included with deflection yoke (T5) rear cover
M6	Ion Trap	83-830	
B3	Trimmer Cap.	20-152	Horiz.Range (25-280MMF)
	Safety Glass	48-103	Models 6116, 6114, 6192, 6190, 6192A
	Safety Glass	48-95	Models 6126, 6110, 6130, 6128
	Safety Glass	48-104	Model 6100
	Safety Glass	48-105	Models 6170, 6120
	Safety Glass	48-102	Models 6106, 6108
	Safety Glass	48-101	Models 5160, 5170
	Mask	31-305 *	Models 6116, 6114
	Mask	31-313	Models 6192, 6190, 6192A
	Mask	31-303	Models 6126, 6110
	Mask	31-305	Models 6130, 6128
	Mask	31-304	Model 6100
	Mask	31-307	Model 6170
	Mask	31-306	Model 6120
	Mask	31-311	Models 6106, 6108
	Mask	31-295	Models 5160, 5170

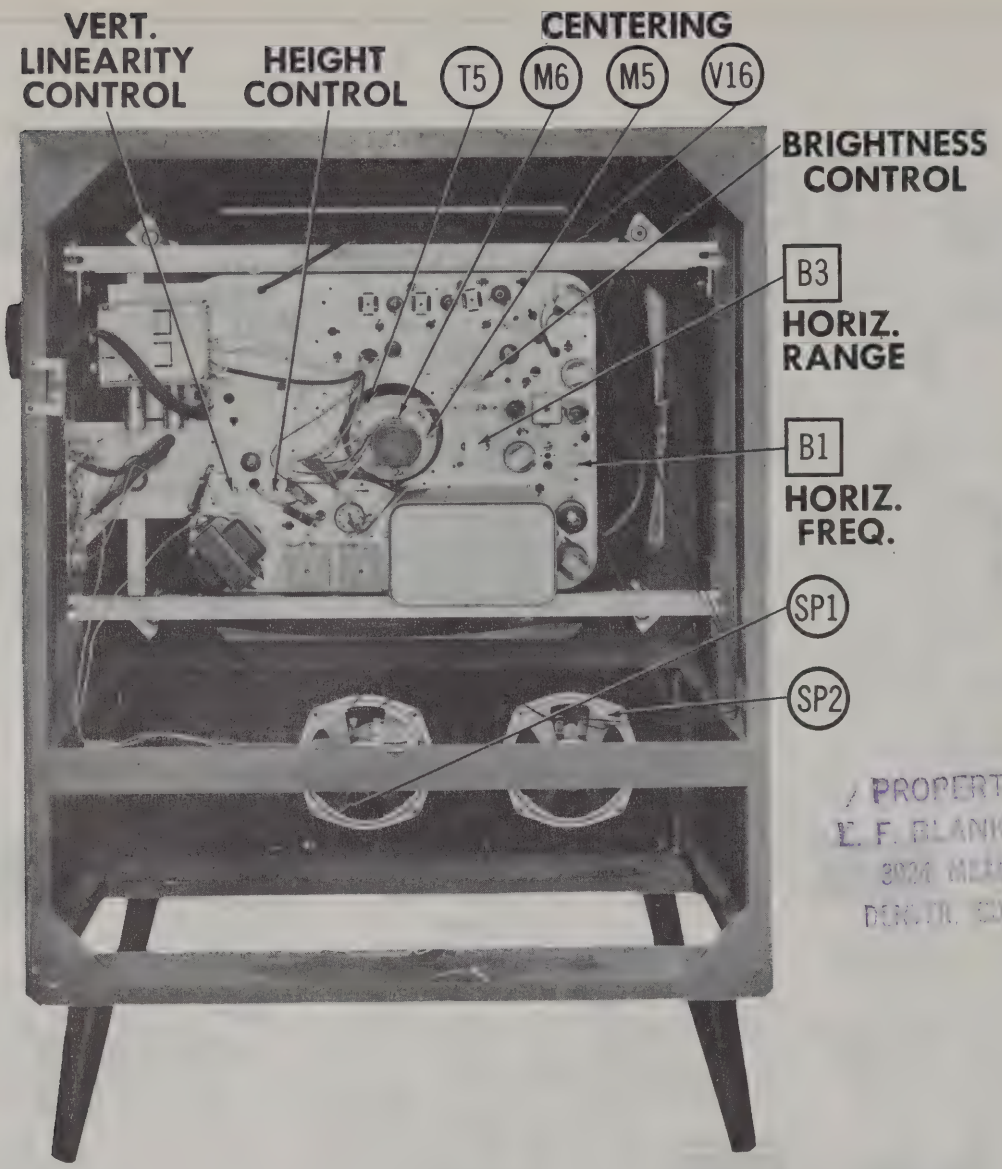
* Alternate part #31-331.



RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE



PROPERTY OF
E. F. BLANKENSHIP
3824 MEADE ST.
DENVER, COLORADO

CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

HORIZONTAL FREQUENCY ADJUSTMENT

1. Turn the horizontal range trimmer (B3) fully clockwise.

2. If the picture cannot be synchronized with the horizontal hold control, set the control to its mid-range position and adjust the horizontal frequency slug (B1) until the picture is in sync. If the picture will not synchronize , turn the horizontal waveform slug (B2) several turns counter clockwise and readjust B1 until the picture synchronizes.

HORIZONTAL WAVEFORM ADJUSTMENT

Connect the vertical amplifier of an oscilloscope thru a low capacity probe (Fig. 5) to terminal "C" of L15. If necessary, adjust B2 for a waveform similar to Fig. 4 with sharp peak 10% higher than the broad peak. Keep the picture in sync during this adjustment with the horizontal hold control or B1. Remove the scope.

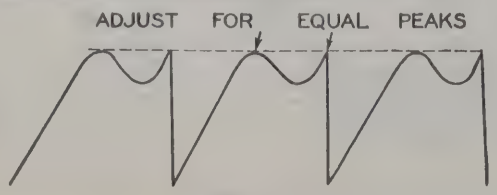


FIG. 4

HORIZONTAL RANGE TRIMMER ADJUSTMENT

1. Turn the horizontal hold control maximum counter clockwise. Switch off channel and back again. If the picture does not lose sync, turn B1 counter clockwise until the picture loses sync when switching off channel and back again . Adjust B1 clockwise until the picture just pulls into sync.

2. Turn the horizontal hold control maximum clockwise. Switch off channel and back again. If the picture does not pull into sync, turn the horizontal range trimmer (B3) clockwise until the picture pulls into sync.

3. Due to the reaction between B1 and B3 it may be necessary to repeat steps 1 and 2 several times until proper synchronization is obtained. When properly adjusted, the picture should remain in sync at both extreme settings of the horizontal hold control when switching off channel and back again.

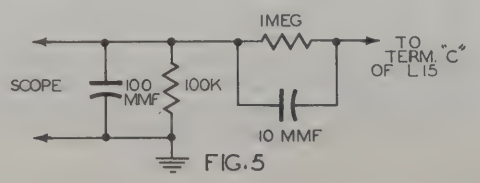
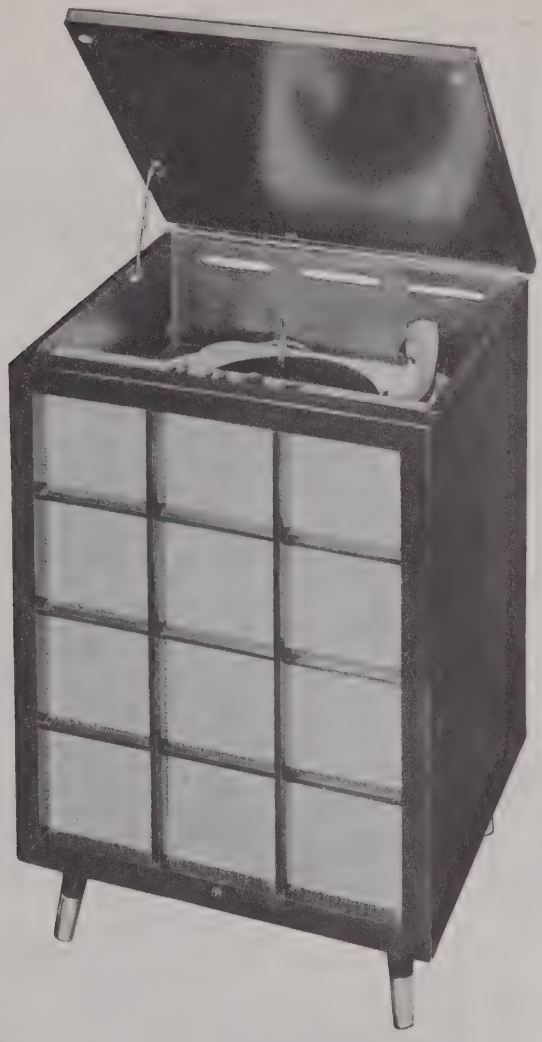


FIG. 5

PROPERTY OF
L. F. BLANKENSHIP
3924 [illegible] ST.
DENVER, COLORADO

STEELMAN
MODEL 3A18U



STEELMAN
MODEL 3A18U

TRADE NAME	Steelman Model 3A18U
MANUFACTURER	Steelman Phono & Radio Co., Inc., 12-30 Anderson Ave., Mt. Vernon, N.Y.
TYPE SET	AC Operated Phono Amplifier with 3 Speed Automatic Record Changer
TUBES (Four)	Types 12AX7 AF Amplifier, 12AX7 AF Amplifier-Phase Inverter, (2) 6V6GT Output
POWER SUPPLY	105-120 Volts AC-60 Cycles RATING .41 Amp. @ 117 Volts AC

FOR SERVICE INFORMATION ON RECORD CHANGER - SEE SIMILAR V-M MODEL 950 - PHOTOFACT SET #216 - FOLDER 11 OR RECORD CHANGER MANUAL CM-5.

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PARTS LIST AND DESCRIPTIONS

STEELMAN MODEL 3A18U

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	12AX7	
V2	AF Amp.-Phase Inv.	12AX7	
V3	Output	6V6GT	
V4	Output	6V6GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	STEELMAN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	40	150		PRS150V40	BR4015	TC48	TD-40-150	FM-1540	TVA-1413
C2A	▲40	150		AFH3-147	C110	FP369.1	TMT144	T-725	TVL-3758
B	▬40	350							
C	■40	350							
C3	40	150		PRS150V40	BR4015	TC48	TD-40-150	FM-1540	TVA-1413

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	STEELMAN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	.027	400								
C5	.001	600		SI1000	D6-102	CUB6D1	GP2L-102	PT621	6TM-D1	
C6	.047	200		BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C7	.047	200		BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C8	100			SI100	D6-101	TP34	GP1K-101	UC-531	5GA-T1	
C9	.05	200		BPD-05	DF-503	CUB2S5		PT415	2TM-S5	
C10	.05	200		BPD-05	DF-503	CUB2S5		PT415	2TM-S5	
C11	270			SI270	D6-271	TP41	GP2K-271	UC-5327	5GA-T27	
C12	.05	200		BPD-05	DF-503	CUB2S5		PT415	2TM-S5	
C13	.047	200		BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C14	.05	200		BPD-05	DF-503	CUB2S47		PT4147	2TM-S5	
C15	.01	400		BPD-01	D6-103	CUB4S1	GP3-333-103	PT411	4TM-S1	
C16	.005	600		BPD-005	D6-502	CUB6D5	GP3-333-502	PT625	6TM-D5	
C17	.05	200		BPD-05	DF-503	CUB2S5		PT415	2TM-S5	
C18	.01	400		BPD-01	D6-103	CUB4S1	GP3-333-103	PT411	4TM-S1	
C19	.005	600		SI5000	D6-502	CUB6D5	GP3-333-502	PT625	6TM-D5	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	STEELMAN PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	100KΩ	½	VC-92	AB-41	A47-100K-Z	Q13-128	U-39	Bass
B	Shaft		Not Req.	AK-4	KSS-3	Not Req.	Not Req.	Attach to R1A
R2A	100KΩ	½	VC-91	AB-40	A47-100K-S	Q11-128	U-41	Treble
B	Shaft		Not Req.	AK-4	KSS-3	Not Req.	Not Req.	Attach to R2A
R3A	100KΩ	½	VC-92	AB-41	A47-100K-Z	Q13-128	U-39	Volume
B	Shaft		Not Req.	AK-4	KSS-3	Not Req.	Not Req.	Attach to R3A

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	STEELMAN PART No.	IRC PART No.	
R4	12KΩ			BTS-12K	
R5	3.3Meg			BTS-3.3Meg	
R6	68KΩ			BTS-68K	
R7	270KΩ			BTS-270K	
R8	3.3Meg			BTS-3.3Meg	
R9	47KΩ			BTS-47K	
R10	4700Ω			BTS-4700	
R11	100KΩ			BTS-100K	
R12	10Meg			BTS-10Meg	
R13	270KΩ			BTS-270K	
R14	100Ω			BTS-100	
R15	10Meg			BTS-10Meg	
R16	270KΩ			BTS-270K	
R17	270KΩ			BTS-270K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	STEELMAN PART No.	IRC PART No.	
R18	100KΩ			BTS-100K	
R19	270KΩ			BTS-270K	
R20	9100Ω 5%			BTS-9100 5%	
R21	10Meg			BTS-10Meg	
R22	10Meg			BTS-10Meg	
R23	12KΩ			BTS-12K	
R24	220Ω	2		BTB-220	
R25	2700Ω			BTS-2700	
R26	220Ω	2		BTB-220	
R27	22KΩ			BTS-22K	
R28	68KΩ			BTS-68K	
R29	68Ω			BTS-68	
R30	68Ω			BTS-68	

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	STEELMAN PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @.41A	121VAC @.070A	6.3VAC @1.57A		PT1008-1					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	STEELMAN PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	8KΩ	3-4Ω	TR-117	Z1011	A-2901 ①	A-3870	26S46 ①	S-55X	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	STEELMAN PART No.	QUAM PART No.	RCA TYPE No.	
SP1 SP2	8"	PM	3-4Ω	SP-104	8A21	234S1	Electrostatic speaker

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	STEELMAN PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	
M1	.070ADC		1004A	RS100	6S100	5M1	100	
M2	.070ADC		1004A	RS100	6S100	5M1	100	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			STEELMAN PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M3	3AG	1A 250V			312001. (3AG 1A)	357001	AGC 1	4405

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	STEELMAN PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M4						

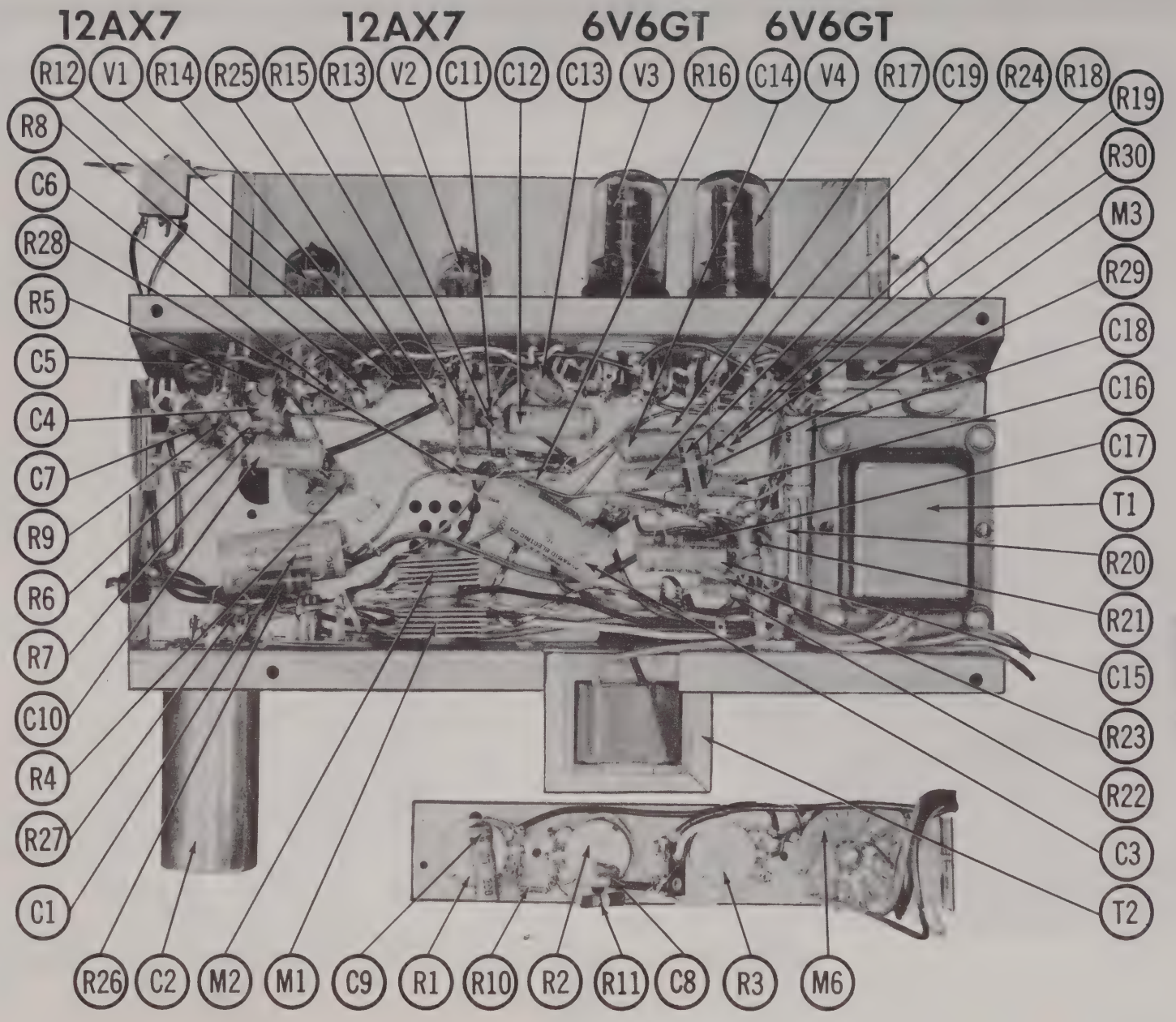
PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA				REMARKS
	STEELMAN PART No.	JENSEN PART No.	PERMO PART No.	WALCO PART No.	
M5		†G-13 or ♦†G-13SD or ♦G-13D	†AC-410 or ♦†AC-410D1 or †♦AC-410D2 or ♦AC-410D	†W-68TPS or ♦†W-68DS or ♦W-68TPD	†Jewel ♦Diamond

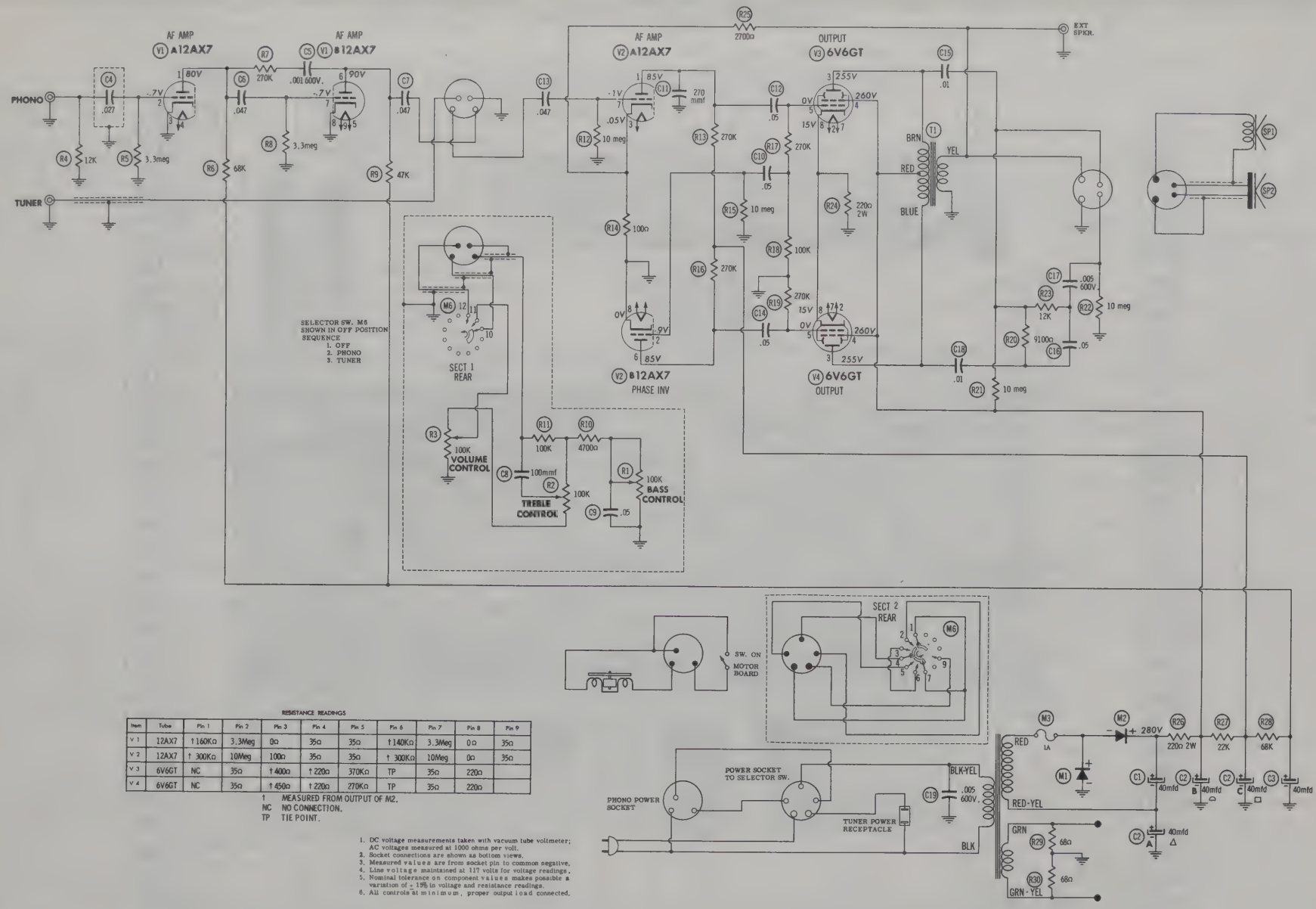
MISCELLANEOUS

ITEM No.	PART NAME	STEELMAN PART No.	NOTES
M6	Switch		Selector (4 Pole-3 position, Rotary wafer type)



CHASSIS BOTTOM VIEW

PROPERTY OF
STEELMAN
MODEL 3A18U



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	12AX7	†160KΩ	3.3Meg	0Ω	35Ω	35Ω	†140KΩ	3.3Meg	0Ω	35Ω
V 2	12AX7	† 300KΩ	10Meg	100Ω	35Ω	35Ω	† 300KΩ	10Meg	0Ω	35Ω
V 3	6V6GT	NC	35Ω	† 400Ω	† 220Ω	370KΩ	TP	35Ω	220Ω	
V 4	6V6GT	NC	35Ω	† 450Ω	† 220Ω	270KΩ	TP	35Ω	220Ω	

† MEASURED FROM OUTPUT OF M2.
NC NO CONNECTION.
TP TIE POINT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

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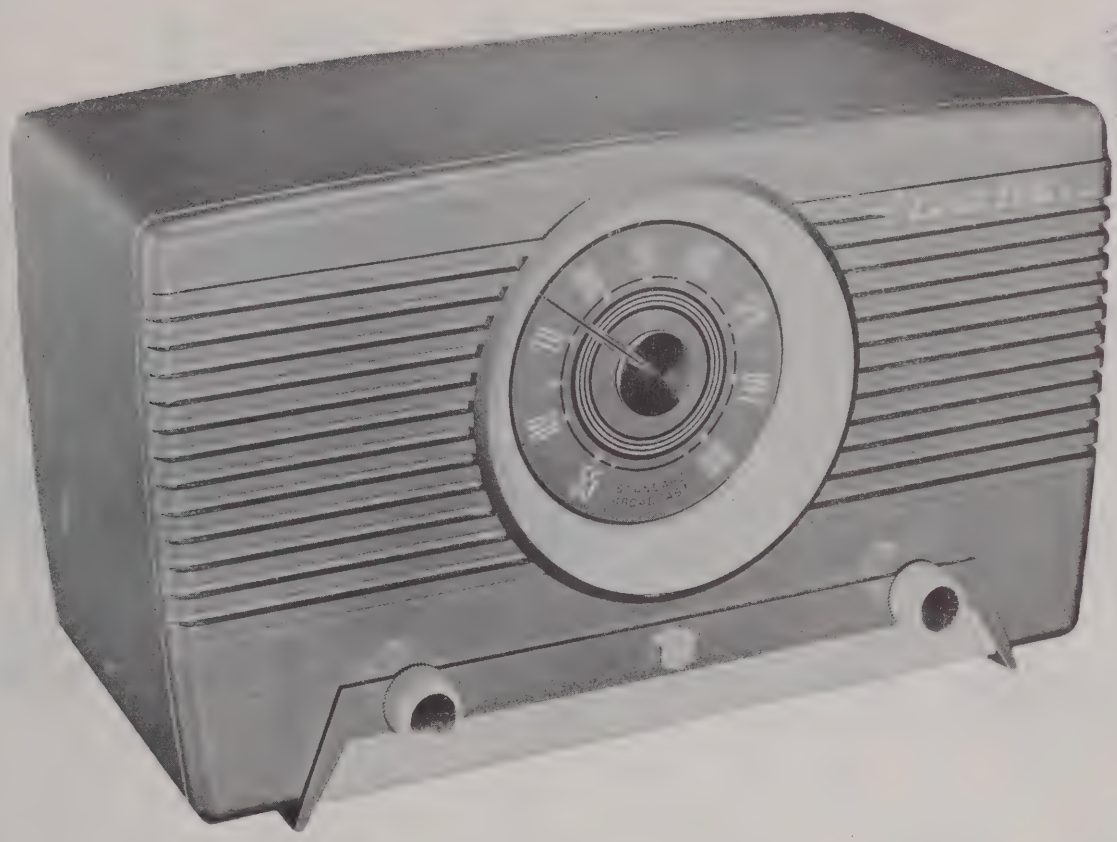

TRUETONE
MODEL D2637A

TRUETONE
MODEL D2637A

TRADE NAME	Truetone Model D2637A
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	AC-DC Operated AM Superheterodyne Receiver
TUBES (Six)	Types 12BA6 Mixer, 12AU6 Oscillator, 12BA6 IF Amplifier, 12AV6 Det.-AVC-AF Amp., 35C5 Output, 35W4 Rectifier
POWER SUPPLY	105-125 Volts AC-DC RATING .23 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540KC-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 1 (grid) of 12BA6 (V1). Low side to B-.	455KC (400~ Mod.)	Tuning gang fully open	Across Voice Coil	A1, A2, A3, A4	Adjust for maximum output. Repeat until no further increase is noticed.
2.		Loop (Radiated)	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	Tune to 1400KC signal	"	A6	"

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PARTS LIST AND DESCRIPTIONS

TRUETONE MODEL D2637A

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Mixer	12BA6	
V2	Oscillator	12AU6	
V3	IF Amplifier	12BA6	
V4	Det. -AVC-AF Amp.	12AV6	
V5	Output	35C5	
V6	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA TRUETONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	40	150	45X411	AFH2-14	XB002	FP212	TMD11	D-060	TVL-2428
B	40	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	.01	200	RCP10W2103M	BPD-01	DD-103	CUB4S1	811-01	PT411	2TM-S1	
C3	.047	200	RCP10W2473M	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C4	47		47X495	SI47	D6-470	TP29	GP1K-470	UC-5447	5GA-Q47	
C5	.047	200	RCP10W2473M	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C6	.022	400	RCP10W2223M	BPD-02	DD-203	CUB4S22	817-02	PT4122	4TM-S22	
C7	.0047	600	RCP10W2472M	SI4700	D6-472	CUB6D47	GP2-333-472	PT6247	6TM-D47	
C8A	10000		♦76X5	♦PA-112-3	♦PC-80	♦113TM1	♦1404-01		♦T-1	
B	250									
C										
C9	.01	400	RCP10W4103M	BPD-01	D6-103	CUB4S1	GP3-333-103	PT411	4TM-S1	
C10	.047	400	RCP10W4473M	BPD-05	DF-503	CUB4S47		PT4147	4TM-S47	
C11	.082	200	RCP10W2823M							

♦ Items C8A, C8B, C8C, R9A, and R9B are combined in one unit. When replacing items separately, C8B and C8C should total 250MMF.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA TRUETONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500KΩ	½	36X372-D	BT-63-S	A47F4-500K	Q18-133X	UT-429	Volume-Tapped at 50KΩ
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R1A.
C	Switch		Not Req.	Not Req.	SWE-12	76-1	US-26	Attach to R1A.

RESISTORS

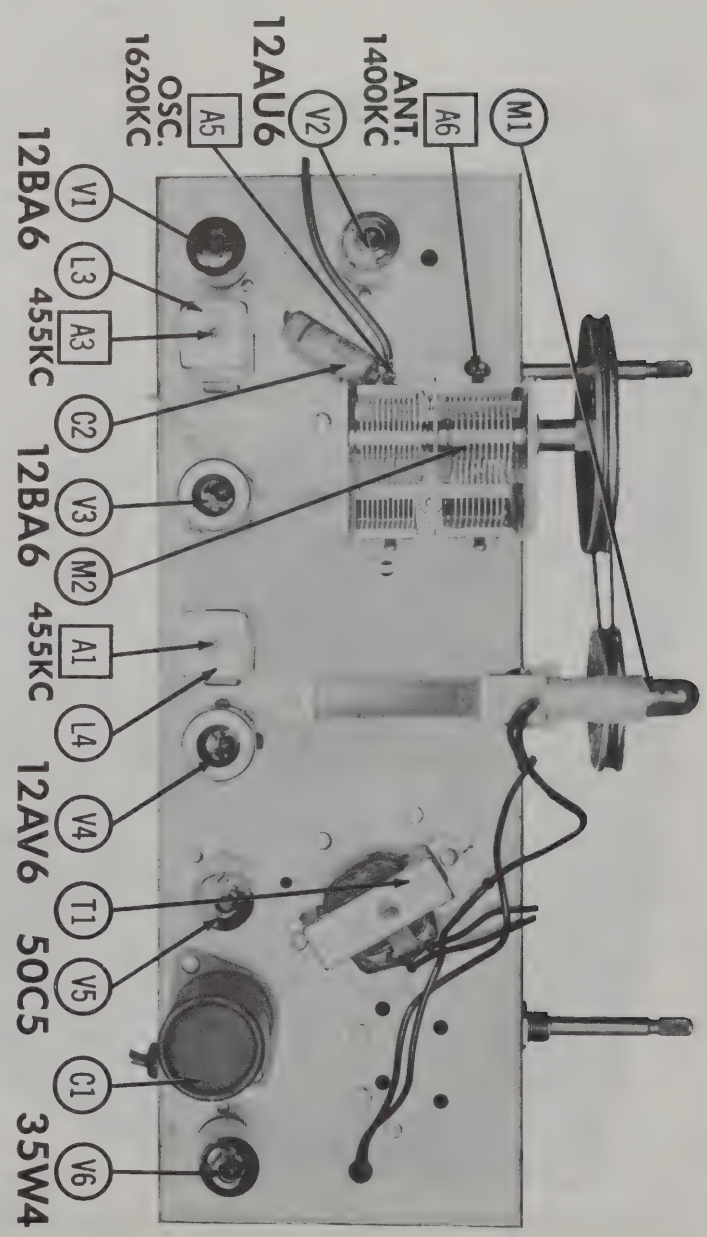
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA TRUETONE PART No.	IRC PART No.	NOTES
R2	27KΩ		B84273	BTS-27K	
R3	10Meg		B85106	BTS-10Meg	
R4	1Meg		B85105	BTS-1Meg	
R5	68Ω		B84680	BTS-68	
R6	47KΩ		B85473	BTS-47K	
R7	22KΩ		B85223	BTS-22K	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA TRUETONE PART No.	IRC PART No.	NOTES
R8	10Meg		B85106	BTS-10Meg	
R9A	500KΩ		♦76X5	BTS-470K	
B	500KΩ			BTS-470K	
C10	180Ω		B84181	BTS-180Ω	
R11	1000Ω	1	B84102	BTA-1000	
R12	27Ω	1	C84270	BTA-27	

♦ Items R9A, R9B, C8A, C8B, C8C are combined in one unit.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	TRUETONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	3.2KΩ	3-4Ω	51X169	Z1103	A-3031	A-3330	24S5A	S-16X	

SPEAKER

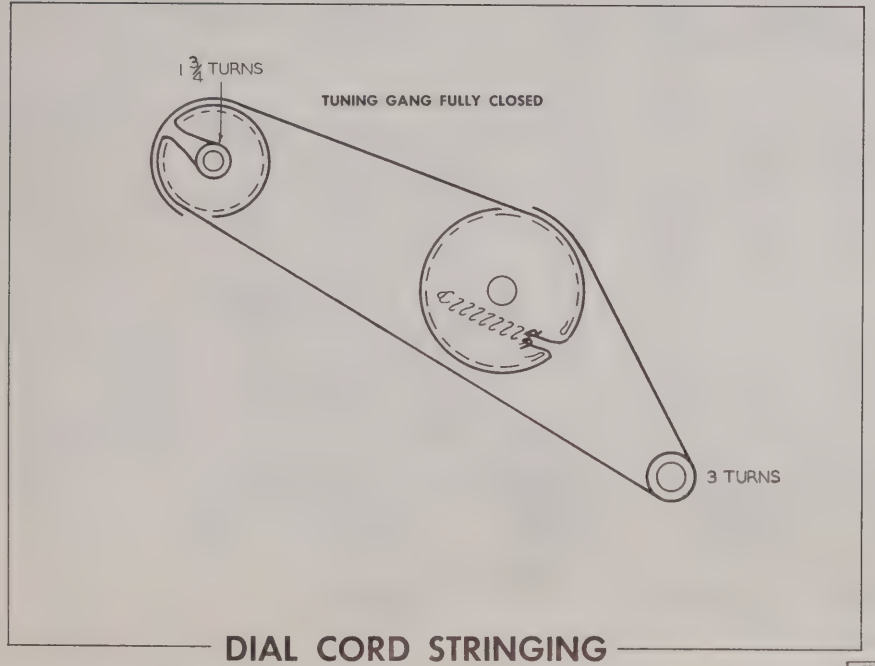
ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	TRUETONE PART No.	QUAM PART No.	RCA TYPE No.	
SP1	5 1/4"	PM	3-4Ω	12A523	52A1 ①		① Use universal mounting bracket.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	TRUETONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Ant.	1.5Ω		9A2384				Includes cabinet back
L2	Osc. Coil	4.8Ω *	5.4Ω	9A2342				* Tapped @ .6Ω
L3	Input IF	15Ω	15Ω	9A2343	16-6758	BC-352	12-C1	
L4	Output IF	15Ω	15Ω	9A2344	16-6770	BC-355	12-C6	

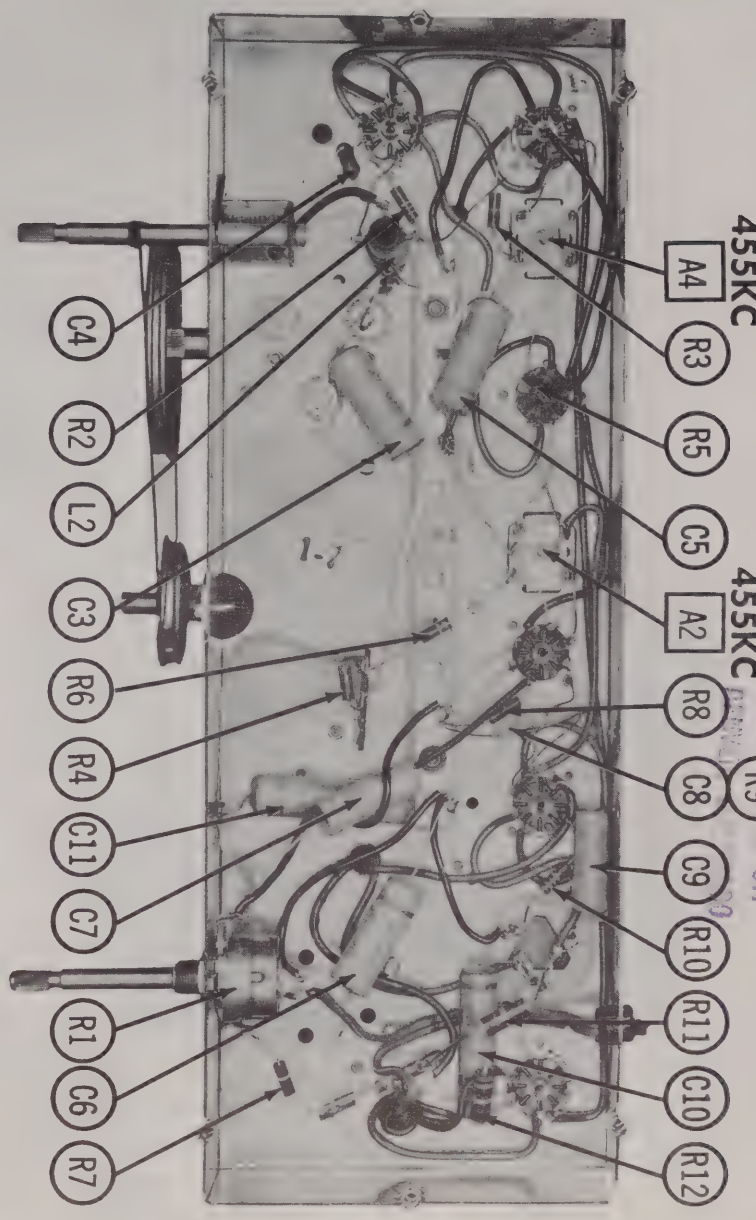
MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M1	Dial Light	7A103	#47
M2	Tuning Cap.	14X228	2 Gang (18-390MMF, 21-140MMF)
	Cabinet	55X466-2	
	Knob	10A807	On-Off-Volume & Tuning
	Dial Scale	58X785	
	Dial Pointer	15X282	



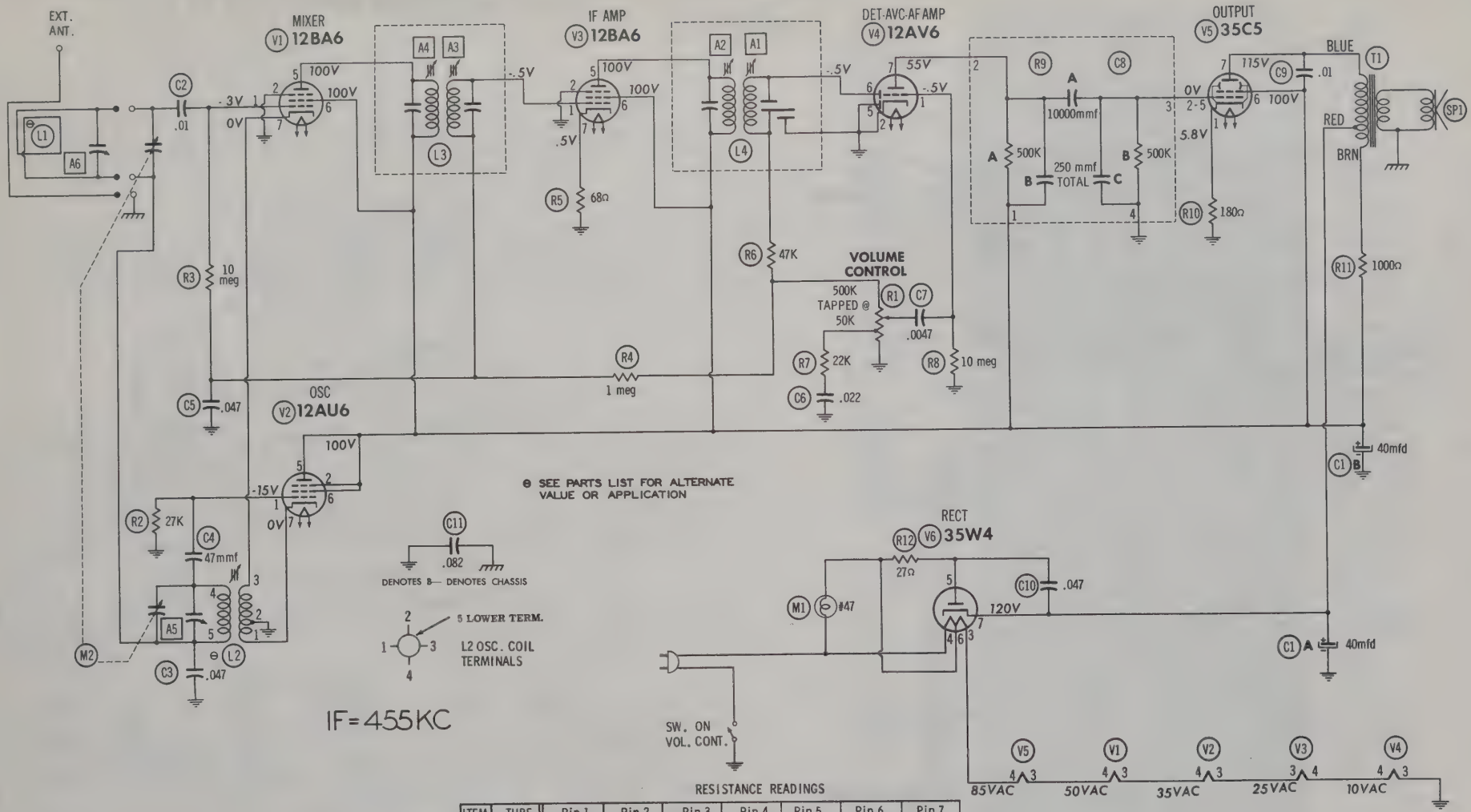
DIAL CORD STRINGING

CHASSIS—BOTTOM VIEW



PROPERTY OF

TRUETONE MODEL D2637A



⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BA6	11.5meg	0Ω	36Ω	48Ω	† 1KΩ	† 1KΩ	.5Ω
V2	12AU6	27KΩ	† 1KΩ	24Ω	36Ω	† 1KΩ	† 1KΩ	5Ω
V3	12BA6	1.5meg	0Ω	24Ω	12Ω	† 1KΩ	† 1KΩ	68Ω
V4	12AV6	10meg	0Ω	0Ω	12Ω	0Ω	500KΩ	† 500KΩ
V5	35C5	180Ω	500KΩ	48Ω	83Ω	500KΩ	† 1KΩ	† 160Ω
V6	35W4	NC	NC	83Ω	117Ω	142Ω	115Ω	500KΩ

† MEASURED FROM PIN 7 OF V6.
NC NO CONNECTION.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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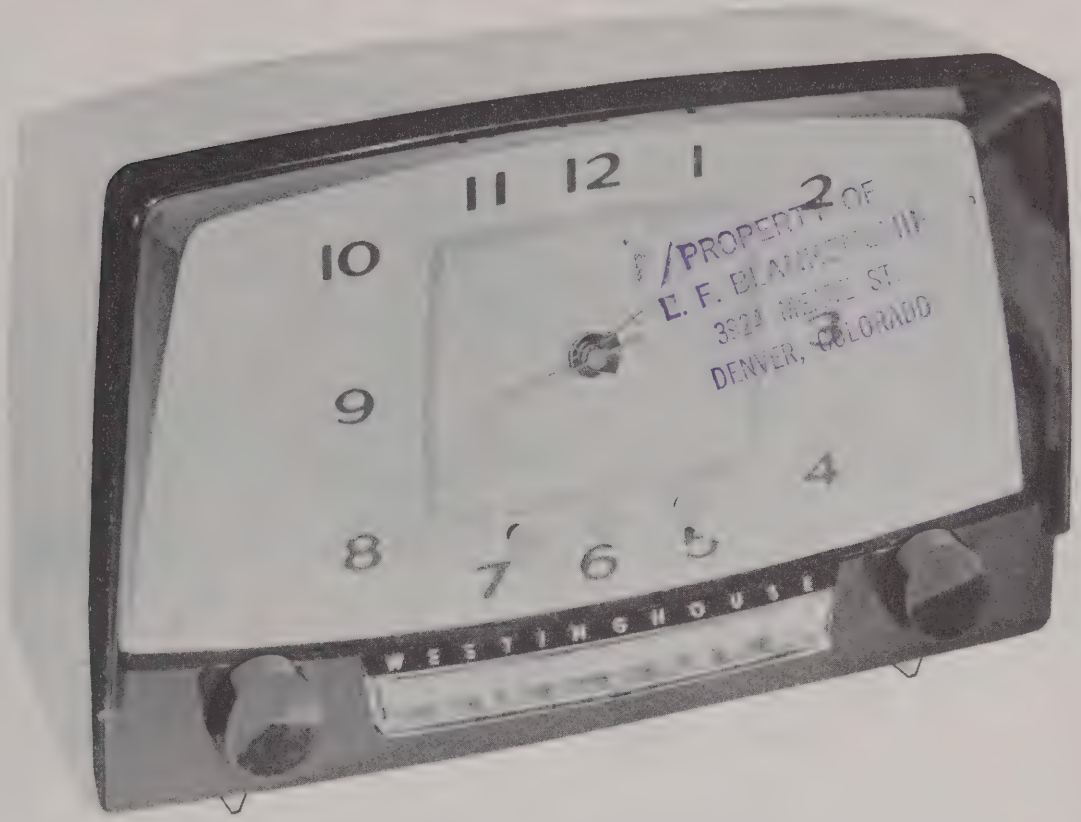
WESTINGHOUSE MODELS H-547T5, H-548T5, H-549T5, H-550T5 (Ch. V-2261-1)

WESTINGHOUSE MODELS H-547T5, H-548T5, H-549T5, H-550T5 (Ch. V-2261-1)



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WESTINGHOUSE MODELS H-547T5, H-548T5, H-549T5, H-550T5 (Ch. V-2261-1)

TRADE NAME	Westinghouse Models H-547T5, H-548T5, H-549T5, H-550T5 (Ch. V-2261-1)
MANUFACTURER	Westinghouse Electric Corp., TV-Radio Div., Metuchen, N. J.
TYPE SET	AC Operated AM Superheterodyne Receiver with Electric Clock
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12AV6 Det.-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	105-120 Volts AC-60 Cycles
RATING	.26 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540KC-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	200MMF	High side to antenna stator lug on tuning gang. Low side to B-.	455KC (400~ Mod.)	Tuning gang fully open	Across Voice Coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop (Radiated)	1625KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	Tune to 1400KC signal	"	A6	"

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PARTS LIST AND DESCRIPTIONS

WESTINGHOUSE
MODEL H-547T5 (Ch. V-2261-1)

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	REPLACEMENT DATA		NOTES
		Westinghouse PART No.	STANDARD REPLACEMENT	
V1	Converter	12BE6	12BE6	
V2	IF Amplifier	12BA6	12BA6	
V3	Det. -AVC-AF Amp.	12AV6	12AV6	
V4	Output	50C5	50C5	
V5	Rectifier	35W4	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Westinghouse PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	50	150	V-15878-1	PRS150V5050	BBRD5515	TCD49	TDLD-9	FMD-1550	TVA-2453
B	50	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	Westinghouse PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	10000		215V111A03	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C3A	220		♦ V-15542-1		♦ PC-158					
B	5000									
C	5000									
D	250									
E										
C4	10000		215V111A03	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C5	. 047	400	V-10157-4473M	BPD-05	DF-503	CUB4S47		PT4147	4TM-S47	
C6	. 01	600		BPD-01	DD-103	CUB6S1	811-01	PT611	6TM-S1	Note 1

Note 1. Some versions use . 047MFD in this application (Part No. 210V054A73).
♦ Items C3A, C3B, C3C, C3D, C3E, R5A, R5B and R5C are combined in one unit. When replacing items separately, C3D and C3E should total 250MMF.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Westinghouse PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500KΩ	½	V9993-20	B-60	A47-500K-Z	Q13-133	U-48	Volume
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A.

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Westinghouse PART No.	IRC PART No.	
R2	22KΩ	½	250V232A23	BTS-22K	Note 1
R3	3. 3Meg	½	250V233A35	BTS-3. 3Meg	
R4	100Ω	½		BTS-100	
R5A	6. 8Meg	½		BTS-6. 8Meg	
B	470KΩ	½	♦V-15542-1	BTS-470K	
C	470KΩ	½		BTS-470K	

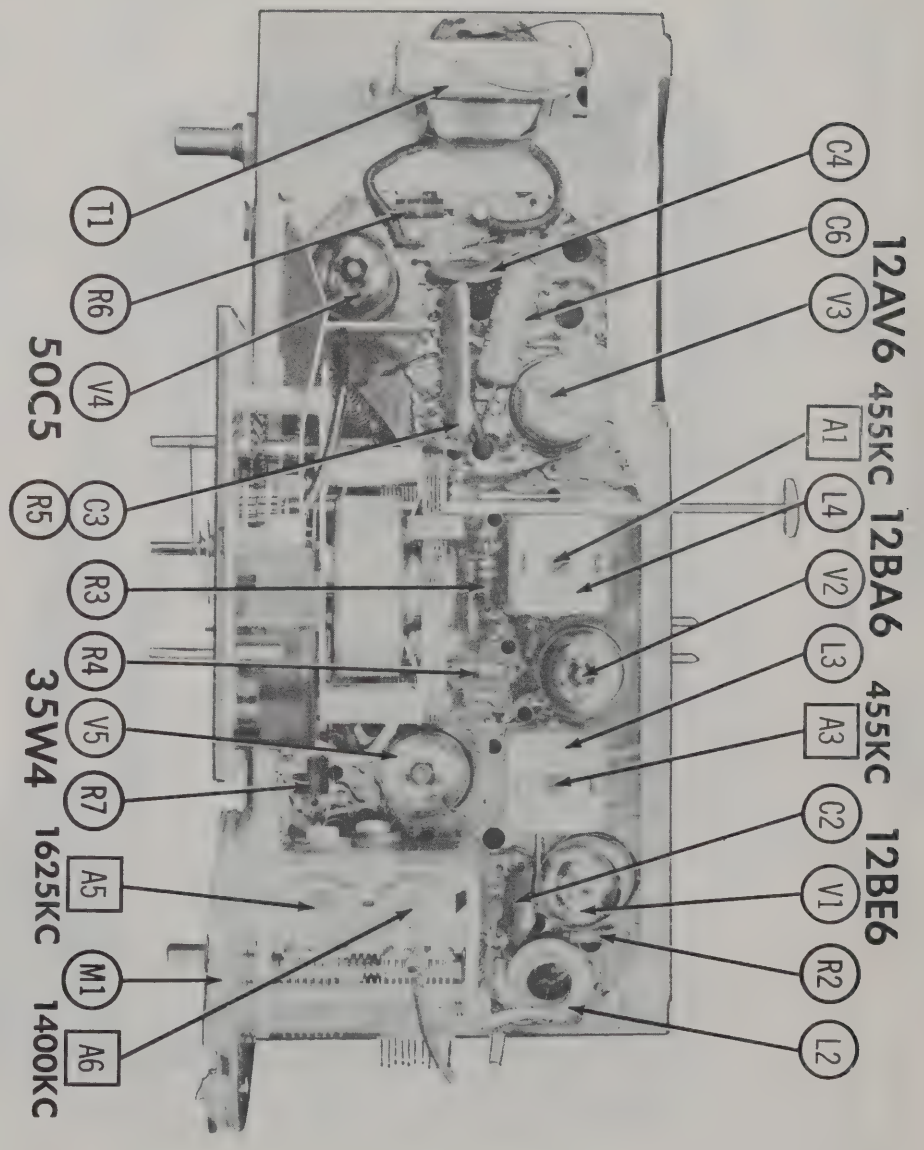
ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Westinghouse PART No.	IRC PART No.	
R6	150Ω	½	250V231A51	BTS-150	
R7	1000Ω	1	250V331A02	BTA-1000	

Note 1. Some versions use a 150Ω ½W resistor in this application (Mfgr. Part No. 250V231A51).
♦ Items R5A, R5B, R5C, C3A, C3B, C3C, C3D, C3E are combined in one unit.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	Westinghouse PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2.4KΩ	3-4Ω	V-16002-1	Z1101	A-3025	A-3332	26S58	S-12X	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

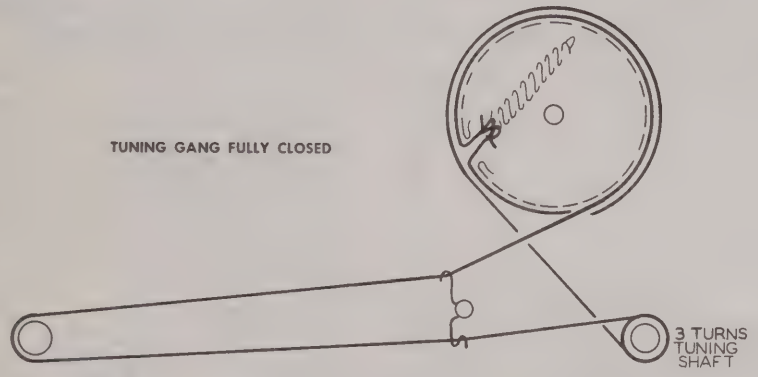
ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	Westinghouse PART No.	QUAM PART No.	RCA TYPE No.	
SP1	4"	PM	3-4Ω	V-16022-1	4A07 ①	223S1 ①	① Trim corner of speaker to fit.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	Westinghouse PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Ant.	4.8Ω		V-15837-1				
L2	Osc. Coil	1Ω	12Ω	V-15752-2				
L3	Input IF	16Ω	16Ω	V-15547-1	16-6780		13-PC1	
L4	Output IF	16Ω	16Ω	V-15547-1	16-6780		13-PC2	

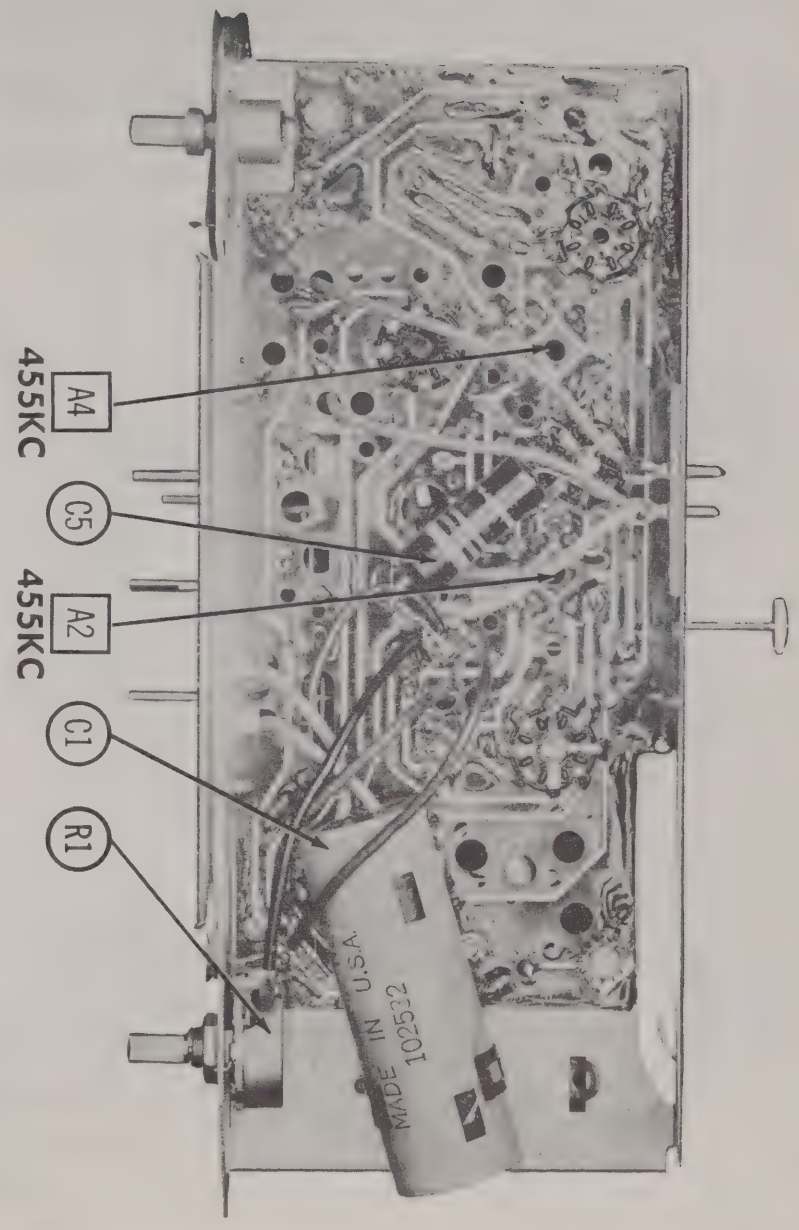
MISCELLANEOUS

ITEM No.	PART NAME	Westinghouse PART No.	NOTES
M1	Tuning Cap.	V-15757-1	2 Gang (10-285MMF, 11-100MMF)
	Cabinet	V-1417-1	Model H-547T5
	Cabinet	V-1417-2	Model H-548T5
	Cabinet	V-1417-3	Model H-549T5
	Cabinet	V-1417-4	Model H-550T5
	Knob	V-14683-8	Volume & Tuning-Model H-547T5
	Knob	V-14683-9	Volume & Tuning-Model H-548T5
	Knob	V-14683-10	Volume & Tuning-Model H-549T5
	Knob	V-14683-11	Volume & Tuning-Model H-550T5
	Knob	V-15984-1	Clock (3 used)-Model H-547T5
	Knob	V-15984-2	Clock (3 used)-Model H-548T5
	Knob	V-15984-3	Clock (3 used)-Model H-549T5
	Knob	V-15984-4	Clock (3 used)-Model H-550T5

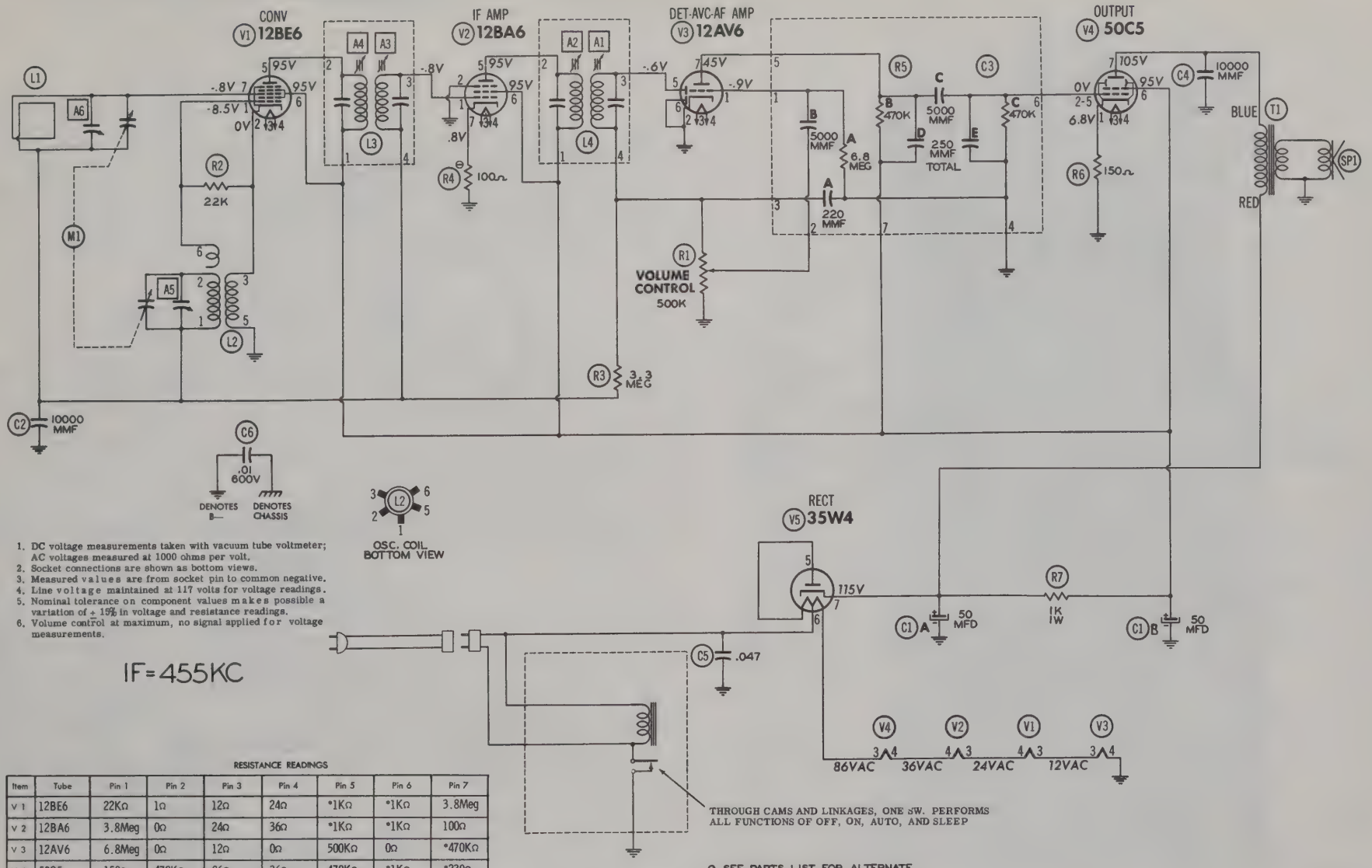


DIAL CORD STRINGING

CHASSIS—BOTTOM VIEW



WESTINGHOUSE
MODEL H-547T5 (Ch. V-2261-1)



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

IF=455KC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	1Ω	12Ω	24Ω	*1KΩ	*1KΩ	3.8Meg
V 2	12BA6	3.8Meg	0Ω	24Ω	36Ω	*1KΩ	*1KΩ	100Ω
V 3	12AV6	6.8Meg	0Ω	12Ω	0Ω	500KΩ	0Ω	*470KΩ
V 4	50C5	150Ω	470KΩ	86Ω	36Ω	470KΩ	*1KΩ	*230Ω
V 5	35W4	NC	NC	86Ω	120Ω	120Ω	117Ω	50KΩ

* - MEASURED FROM PIN 7 OF V5.
NC - NO CONNECTION

θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

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WILCOX-GAY
MODEL 5F Series

Figure 1

GENERAL INFORMATION

Wilcox-Gay "Recordio" Models 5F Series features fingertip operation for Fast Forward, Playback, Stop, Record, and Fast Reverse. These records are designed to record and playback two tracks of material on standard width recording tape. Any reel size up to 7" can be used. Two neon recording indicators simplify the recording level setting. New recordings can be made on previously recorded tape since the erase head is automatically positioned when the "Record" button is pressed, or the same recording may be played back indefinitely. Recordings can be made from a radio, television receiver, or phonograph, in addition to those made directly from the microphone. Three Jacks are provided for the use of external speakers when greater volume and better coverage is needed.

The 5F Series has two tape speeds, 3 3/4" and 7 1/2" per second. Using both tracks of the tape the recording time is as follows:

Reel Size	3 3/4" Speed	7 1/2" Speed
5" reel (600 ft.)	1 hour	1/2 hour
7" reel (1200 ft.)	2 hours	1 hour

These units are designed to operate on 60 cycle, 115 volt, AC supply only. Before connecting to your line supply, be absolutely certain that it agrees with the above specifications.

Manufactured by:

Wilcox - Gay Corporation
Charlotte, Michigan

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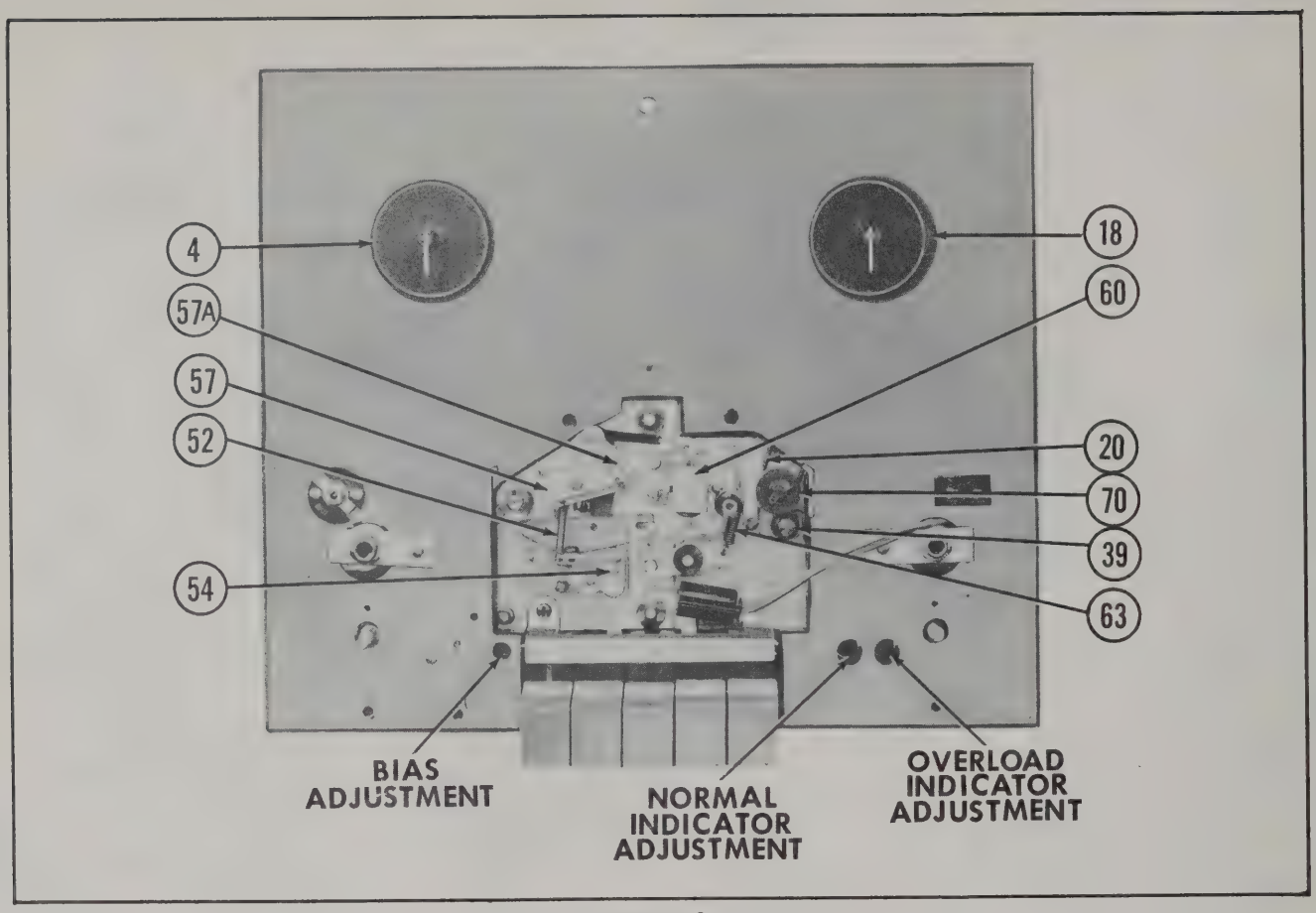

Figure 2

OPERATING INSTRUCTIONS

Preparation For Operation-

1. Remove the AC power cord, 5" reel of tape, empty reel and the microphone from the storage compartment.

2. Depress the "Stop" button.

3. Plug the AC cord into a convenient wall receptacle of the proper rating.

4. Set speed changer knob to 7.50 or 3.75 as desired.

5. Place Remote - Normal switch in Normal position.

CAUTION: Do not turn speed change knob unless "Stop" button is depressed.

When the Forward or Reverse buttons are depressed, the Record and Play button are locked so that they cannot be pressed down, with the possibility of spilling tape. The buttons should always be pressed down firmly until they latch and the Stop button must be depressed before changing functions or speeds of the recorder.

IMPORTANT: Always depress the Stop button when the machine is not in use.

Speed Change Knob-

The arrow on the speed change knob should point at 7.50 or 3.75 according to the speed desired. These recorders have two speeds, 7 1/2" and 3 3/4" per second. The arrow pointing at 7.50 means the unit will operate at the fast speed or 7 1/2" per second.

CAUTION: Turning the speed change knob while the unit is operating will not change the speed. The Stop button must be depressed before the speed can be changed.

Threading The Tape-

1. Place a full reel of tape on the left supply spindle, making certain one of the reel slots catch the protrusions of the pan. Unwind about 14" of tape from the supply reel.

2. Insert free section of tape into the tape slot.

3. Insert free end of tape into one of the three slots in the hub of the right (take-up) reel and while holding the tape in place give the reel two or three turns until the tape is secured.

4. The dull side of the tape should always face away from the operator (rear of unit).

To Record From Microphone-

1. Turn the On-Off Volume control to the right until a click is heard and allow about 30 seconds for the unit to warm up. The pilot light located above the stop button will glow when the unit is turned on.

2. Insert the microphone plug into the "Microphone" input.

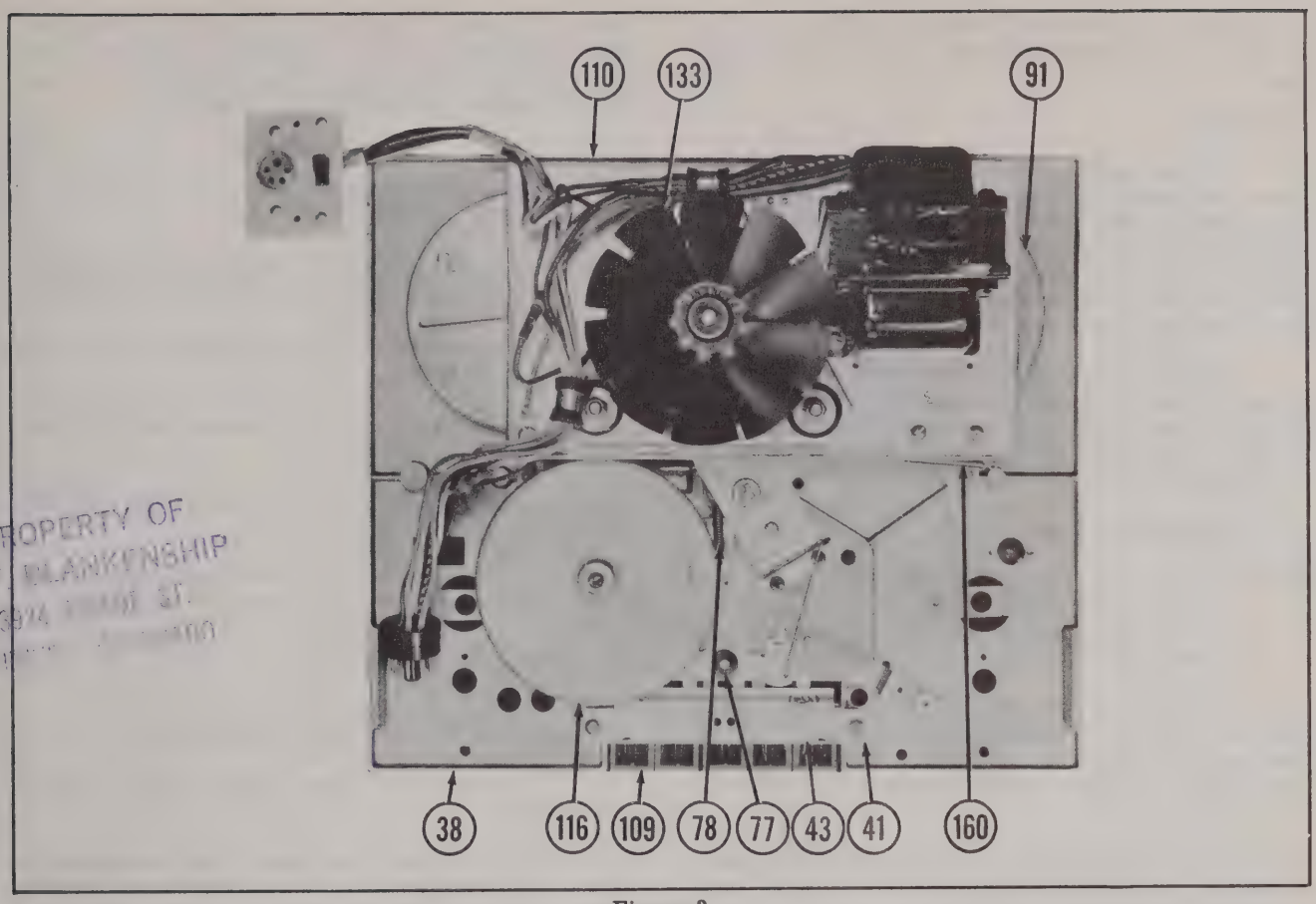

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Figure 3

3. Move the record lock button (27) downward with the left hand. This releases the safety lock which prevents accidental erasure.

4. Depress the "Record" button with the right hand (while holding record lock button (27) with the left hand) until it latches.

5. Adjust the "Volume" control until the "Normal" indicator just flashes, while speaking into the microphone. When the "Volume" control is advanced too far the "Overload" indicator will flash and the recording will be distorted. To prevent overload, lower the "Volume" control to a point where the "Overload" indicator will not flash.

6. The "Tone" control does not operate during recording. When recording from radio, set the radio "Tone" control for maximum treble.

To Record From External Radio, TV, Or Phonograph-

1. Insert the phonograph pickup plug into the "Radio-PA-Phono" jack.

2. For radio or TV recording, connect patch cord No. C20.233 to the voice coil of the radio or TV receiver speaker by means of the alligator clips. Plug into "Radio-PA-Phono" jack.

3. Proceed as described under "To Record From Microphone".

NOTE: Remove patch cord after recording is completed.

To Use Second Track-

1. Depress the "Stop" button when all the tape has wound onto the take-up reel.

2. Remove reel containing tape and place on left hand supply pan.

3. Place empty reel on right hand take-up pan.

4. Thread tape as previously described.

To Play Recordings-

1. Turn On unit with "Volume" control knob.

2. Thread tape as described under "Threading The Tape".

3. Set the speed change knob (1) to the speed at which the recording was made.

4. Depress "Play" button until it latches.

5. Adjust "Volume" and "Tone" control to desired listening level.

High-Speed Forward Or Reverse-

When it is desirable to play a certain portion of the tape over again it is not necessary to rewind the entire tape. By depressing the "Forward" or "Reverse" button the tape will advance (or reverse) at a rapid speed.

Several minutes of normal recording can be skipped in a few seconds by the "Reverse" and "Forward" buttons.

Tape Timer-

If, when making recordings or playing a recorded tape, you wish to play back a certain recording, note the reading on the timer scale when the particular recording is being made or heard. Rewind the tape until the number you have noted appears on the scale, press "Stop" button, then press "Play" button and you are now listening to the recording you wanted.

When starting a new reel of tape or re-recording a reel, reset the indicator pointer to "O" by rotating the reset knob. By starting at "O" on all tapes, the number location can be cataloged for each selection on any reel.

To Edit And Splice Tape-

NOTE: Since it is impossible to edit and splice one track without affecting the other, recordings which are to be edited should be limited to one track only.

1. The tape may be edited by cutting out unwanted portions, or by joining selections into another sequence. Announcements may be inserted between selections, etc. Unused sections of tape can be spliced together for re-use.

2. For best results, cut tape at a slight diagonal, join ends together with splicing tape on the glossy side and trim off any excessive width.

Erasing Recorded Material-

When the record button is depressed, the erase head is automatically positioned, erasing any previous recording before a new one is made. You may erase material no longer needed, without recording, by depressing the "Record" button and turning the "Volume" control knob to the minimum volume position of extreme counter-clockwise position just before the recorder shuts off. One track is erased at a time. To erase the second track, reverse the reels and repeat the above operation.

Remote Control Operation-

A socket and switch are provided to allow remote operation up to a distance of 18 feet, either recording or playback. This is accomplished by means of a remote control cable (Model No. HC-12). Connect attachment cord as follows:

1. Insert remote control cable plug into remote socket. Be sure remote control switch on end of cable is in "Stand-by" position.

2. With control switch on the recorder in "Normal" position start the unit in the regular manner and set "Volume" control to the proper level.

3. Place control switch on the set to "Remote" position. Tape will come to a stop.

The recorder can now be operated (start and stop) by means of the remote cable switch. When starting the recorder by means of the remote control, the switch should be rotated to the "Motor" position and then after a slight pause rotated to the "Record-Play" position. To stop recording or playback, rotate the control switch directly to "Stand-by" position, pausing slightly at the "Motor" position.

ADJUSTMENTS

Record-Play Head Adjustment-
(See Exploded View)-

To adjust the record-play head (60) for maximum frequency response, make the following adjustment.

1. Remove the rear escutcheon (6) and rear escutcheon plate (26).

2. Properly thread an alignment tape or a good recorded tape on the machine.

3. Set the control as described under "To Play Recordings".

4. Turn adjustment screw (60A) as required until the maximum high-frequency output is obtained.

Pressure Pad Adjustment-
(See Exploded View)-

1. Remove the front escutcheon (10).

2. Depress the "Play" button. Do not turn the recorder on.

3. Use a pencil type postal scale and check the amount of pressure necessary to just pull the pad away from the tape. The test should be made on the end of the pressure pad mounting spring (65). Adjust the pressure pad for 1 3/4 oz. $\pm$ 1/4 oz. pressure.

(a) The record head pressure pad is adjusted by the locked adjustment screw (54).

(b) The guide post pressure pad (53) is adjusted by the locked adjustment screw (54).

(c) The guide post pressure pad (53) is adjusted by bending the pressure pad spring. It must be adjusted for minimum pressure against the tape.

4. After the adjustments are made depress the "Stop" button and replace the front escutcheon.

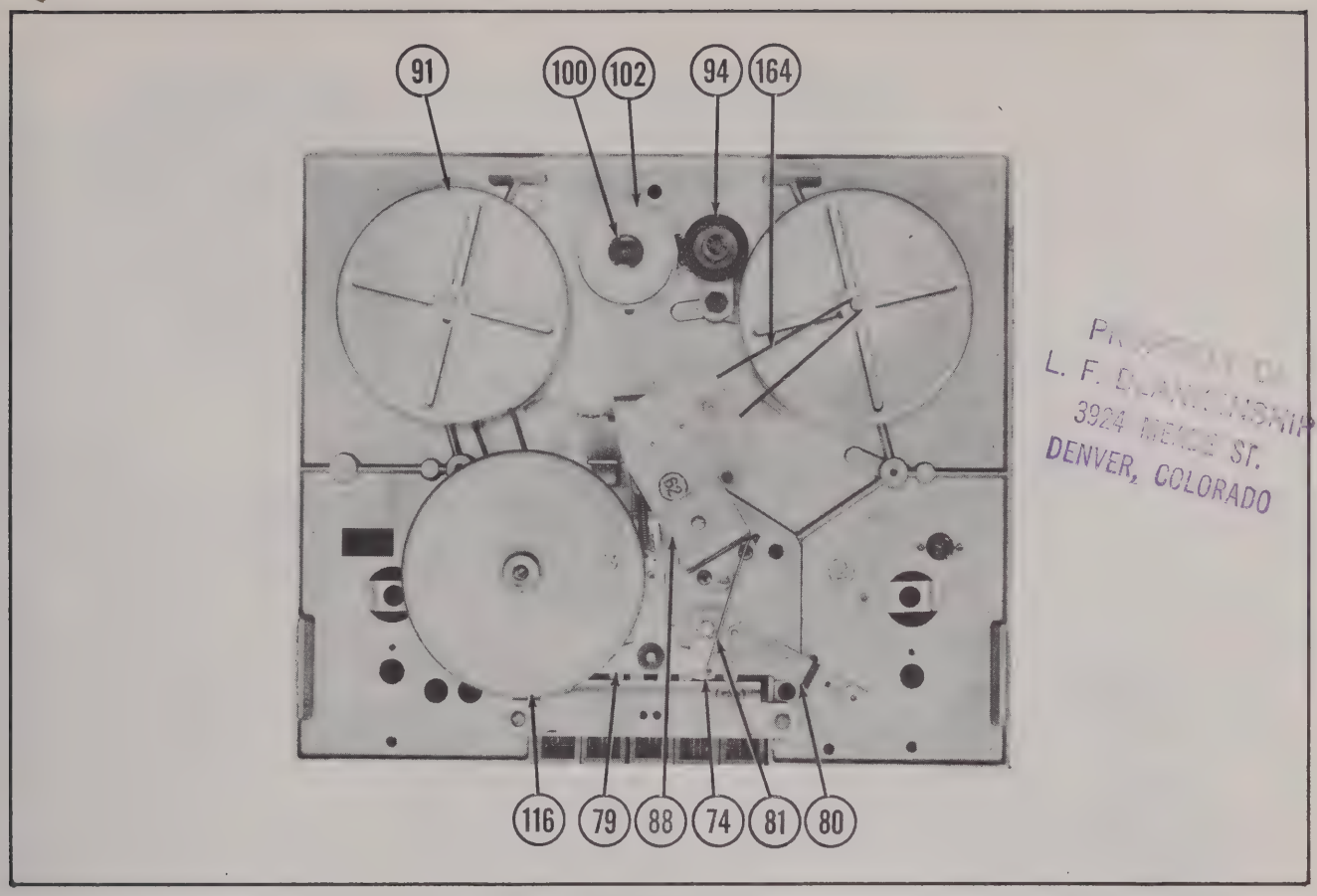
Erase Head Adjustment-

1. With tape properly threaded, turn recorder on and depress the "Record" button. Allow tape to run for a few seconds then turn recorder off, but leave "Record" button depressed.

2. With the escutcheons removed check the erase head (57) to see if it is parallel with the tape.

3. Check to see if the top edge of the tape coincides with the top end of the diagonal slot in the erase head (junction of long diagonal slot and short vertical slot). To adjust level of tape, loosen set screw (47), see exploded view, and rotate tape guide post (48) to move tape up or down. Tighten set screw (47).

4. After this adjustment has been made, check to see if the tape moves forward approximately 1/64" when the "Record" button is depressed. If not, loosen the forward adjustment screw (119), see Figure 2, and turn the screw in or out as required to obtain this 1/64" movement. Tighten the lock nut.



L. F. [illegible]
3924 [illegible] ST.
DENVER, COLORADO

Figure 4

Brake Shoe Adjustment-

1. With all push buttons in the up position the brake shoes (140) should clear the drums by approximately 1/8".

2. Depress the "Stop" button while observing the brake shoes. Both brake shoes must contact the drums at the same time and with equal pressure.

3. The adjustment is accomplished by bending the spring arm (139).

Bias Adjustment-

Turn recorder on and depress the "Record" button; use no tape. To determine if the bias is within satisfactory limits without dismantling the unit, merely connect a VTVM from the top lug of the recording head to chassis. If 75 to 100 volts are present no adjustment is necessary.

If the reading are outside of this range, proceed as follows:

1. Try new: 12AY7, 12AX7, 6AQ5, and 5Y3.

2. If still not within range, remove the chassis shield and connect a low capacity VTVM from test point "A" to chassis. Use low scale. Adjust trimmer M7 for maximum reading. Adjust trimmer M4 to obtain a reading of 2.25 volts.

Neon Record Level Indicator-

The neon record indicator firing level adjustment is only required if a neon bulb is replaced. The two neon indicators are adjusted for correct firing level by means of two trimmer capacitors, one for each indicator.

To adjust indicator proceed as follows:

1. Turn recorder on and depress "Record" button.

2. Connect a short jumper lead across the bias oscillator coil, L1 (short out the coil to disable the oscillator).

3. Connect an audio oscillator, set at 1000 cycles, into the microphone input jack. Output of audio oscillator should be approximately .01 volt. (A 1 volt output level may be used with a 100 to 1 reduction pad of resistors inserted between the audio oscillator and the microphone jack).

4. Connect probe of low capacity type AC VTVM to test point "B" (junction of two 330KΩ resistors, R28 and R29, mounted on a terminal strip near the volume control).

5. Adjust volume control to obtain a reading of 36 volts on VTVM and leave control set and VTVM connected.

6. Disconnect shorting jumper from across bias oscillator coil.

7. Adjust "Normal" indicator trimmer M5A fully clockwise and then turn slowly counterclockwise so that upon loosening the trimmer the "Normal" bulb barely lights. This adjustment must be made loosening the trimmer.

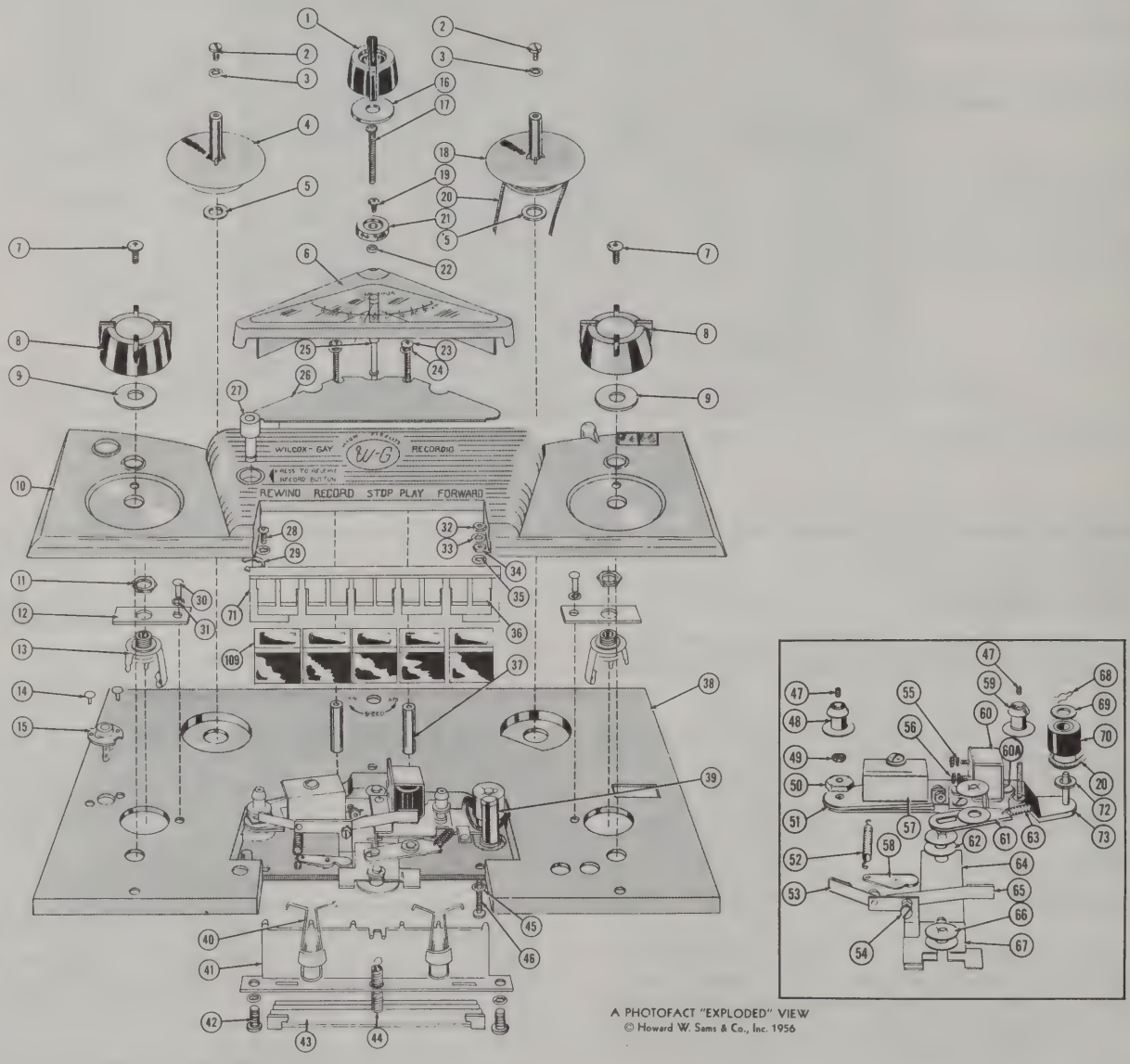


Figure 5A. Exploded View of Parts Above Baseplate.

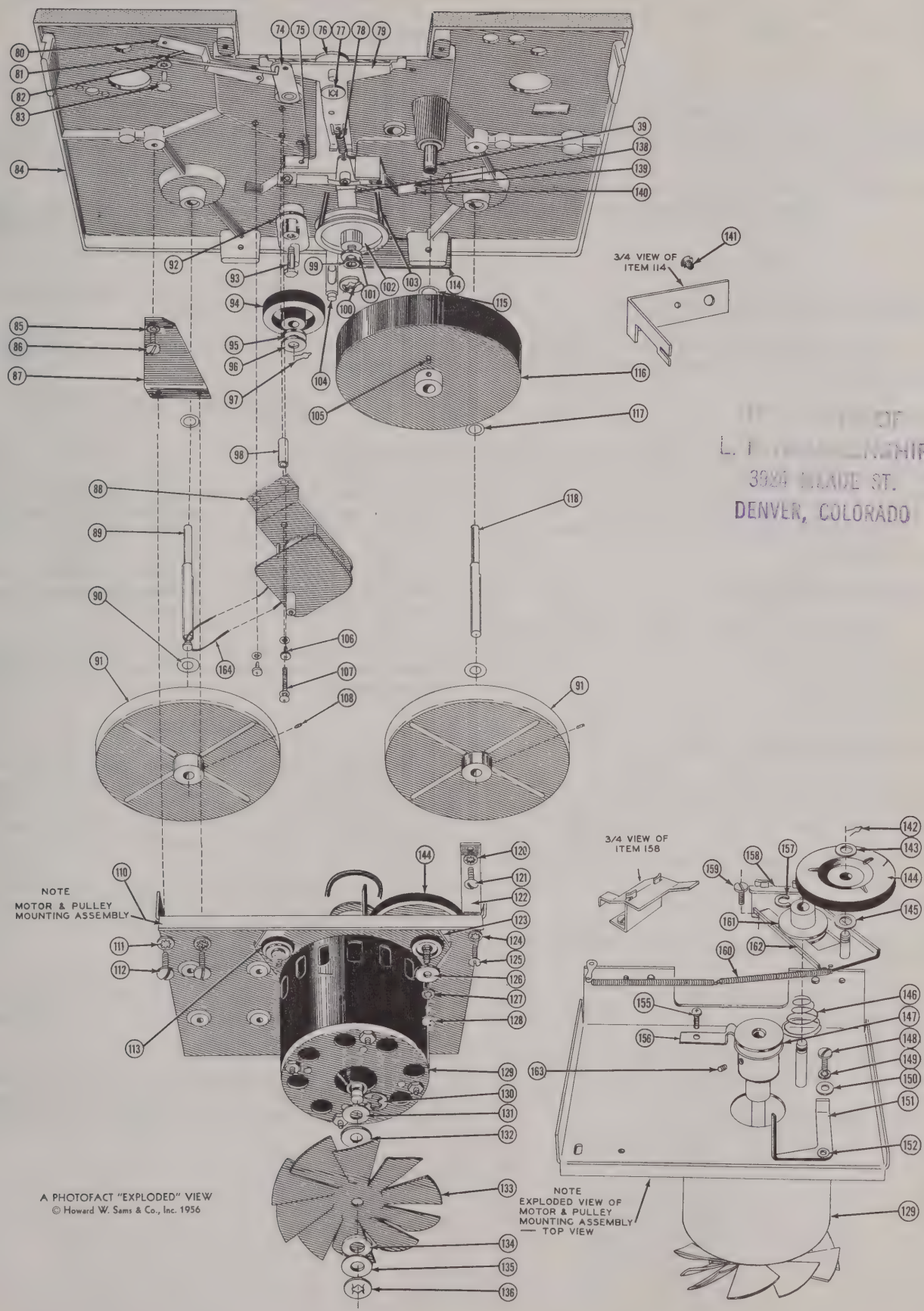

3/4 VIEW OF ITEM 114
3/4 VIEW OF ITEM 158
NOTE MOTOR & PULLEY MOUNTING ASSEMBLY
NOTE EXPLODED VIEW OF MOTOR & PULLEY MOUNTING ASSEMBLY — TOP VIEW
A PHOTOFACT "EXPLODED" VIEW
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Figure 5B. Exploded View of Parts Below Baseplate.

8. Short out the bias oscillator coil.

9. Increase volume control to obtain a reading of 88 volts on the VTVM.

10. Remove short from bias oscillator coil.

11. Adjust "Overload" indicator trimmer M5B as described in step "7", for just barely lighting the "Overload" indicator bulb.

IMPORTANT: Do not readjust the recording bias oscillator after setting the indicator light adjustments.

TROUBLES

Push Buttons Fails To Latch Into Position-

1. Lock plate spring (44) loose or broken, resulting in the lock plate not being held against the hinge bracket (41).

Fails To Erase-

1. Spring (52) loose or broken, resulting in the erase head (57) not being pulled forward to engage the tape.

2. Erase head not aligned properly. See "Erase Head Adjustment".

No Fast Forward Or Reverse-

1. Idler lever tension spring (78) may be loose or broken; if so, idler lever (138) will not be actuated.

2. Check idler drive belt (103) to see if it is properly connected.

No Drive On Record Or Playback-

1. Idler tension spring (154 or 160) loose or broken, thereby not holding idler wheel (144) in engagement with motor pulley (147) and flywheel (116).

2. Idler slide plate (162) binding on slide bushing (161), thus preventing idler wheel (144) from moving forward.

Tape Fails To Wind On Take-Up Reel During Record Or Playback-

1. Reel drive spring (20) loose or broken. Replace if broken.

2. Brake drum shaft (118) binding. Clean foreign matter from bearing surface.

Speed Variation Or "Wow".

1. Check the capstan (39), pinch roller (70), idler wheel (144), motor pulley (147), and flywheel (116) for oil or foreign material on their driving surfaces. Clean these parts with a good cleaning fluid.

2. Check motor pulley (147) to see if it is secured to motor shaft.

3. Check idler tension spring (154 and 160); see if they are holding idler wheel (144) in firm contact with motor pulley (147) and flywheel (116).

4. Idler slide plate (162) binding on slide bushing (161), preventing idler wheel (144) from making positive contact with the motor pulley and flywheel.

Tape Overruns Or Spills When Stop Button Is Depressed During Fast Forward Or Rewind-

1. Brake shoes out of adjustment. See "Brake Shoe Adjustment".

2. Brake pads worn out. Replace pads.

Fails To Record-

1. Tape pressure pad not adjusted properly, resulting in the tape not being held against the recording head. See "Pressure Pad Adjustment".

2. Record head (60) loose on its mounting. Adjust head and tighten into position as described under "Record - Play Head Adjustment".

3. Check the recording tape to see if the dull-coated side faces inward on the reel. If the dull side faces outward a recording cannot be made.

CLEANING

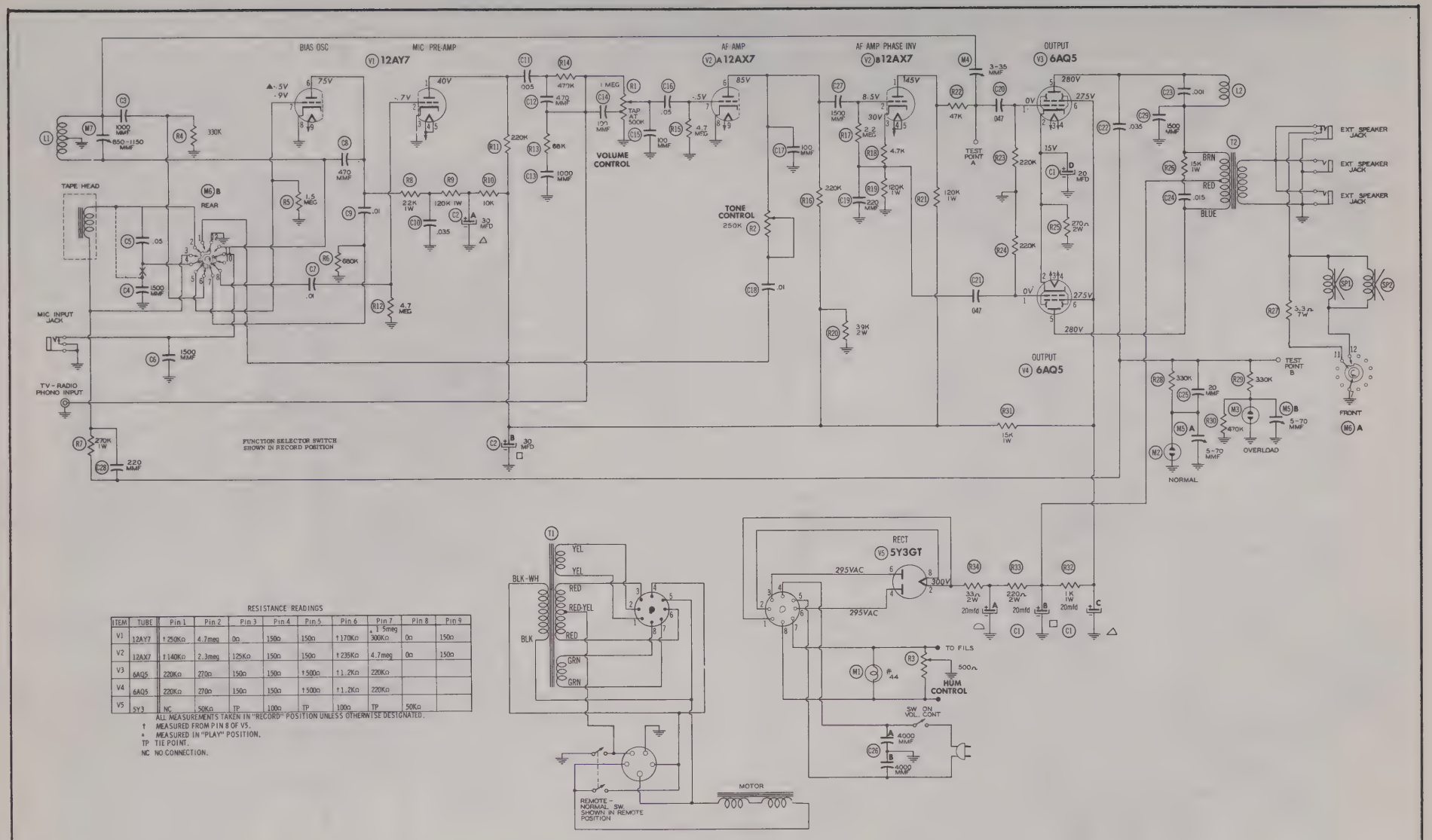
The record head (60), capstan (39), and pressure roller (70) are subject to an accumulation of tape coating residue, which is worn off the tape as it passes these parts. Use a soft cloth and alcohol to clean the head surfaces, capstan and pressure roller.

CAUTION: Do not use a brush or any metal object when cleaning the recording head as this could mar the metal pole piece.

LUBRICATION

All rotating parts are provided with generous size oilite bearings, which are factory lubricated and require no further attention.

An occasional cleaning out of foreign matter under the plastic pushbutton cover is desirable, and a small drop of oil on the sliding lever members is advisable.



ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AY7	†250KΩ	4.7meg	0Ω	150Ω	150Ω	†170KΩ	▲1.5meg 300KΩ	0Ω	150Ω
V2	12AX7	†140KΩ	2.3meg	125KΩ	150Ω	150Ω	†235KΩ	4.7meg	0Ω	150Ω
V3	6AQ5	220KΩ	270Ω	150Ω	150Ω	†500Ω	†1.2KΩ	220KΩ		
V4	6AQ5	220KΩ	270Ω	150Ω	150Ω	†500Ω	†1.2KΩ	220KΩ		
V5	5Y3	NC	50KΩ	TP	100Ω	TP	100Ω	TP	50KΩ	

RESISTANCE READINGS

ALL MEASUREMENTS TAKEN IN "RECORD" POSITION UNLESS OTHERWISE DESIGNATED.
† MEASURED FROM PIN 8 OF V5.
▲ MEASURED IN "PLAY" POSITION.
TP TIE POINT.
NC NO CONNECTION.

PHOTOFACT STANDARD NOTATION SCHEMATIC
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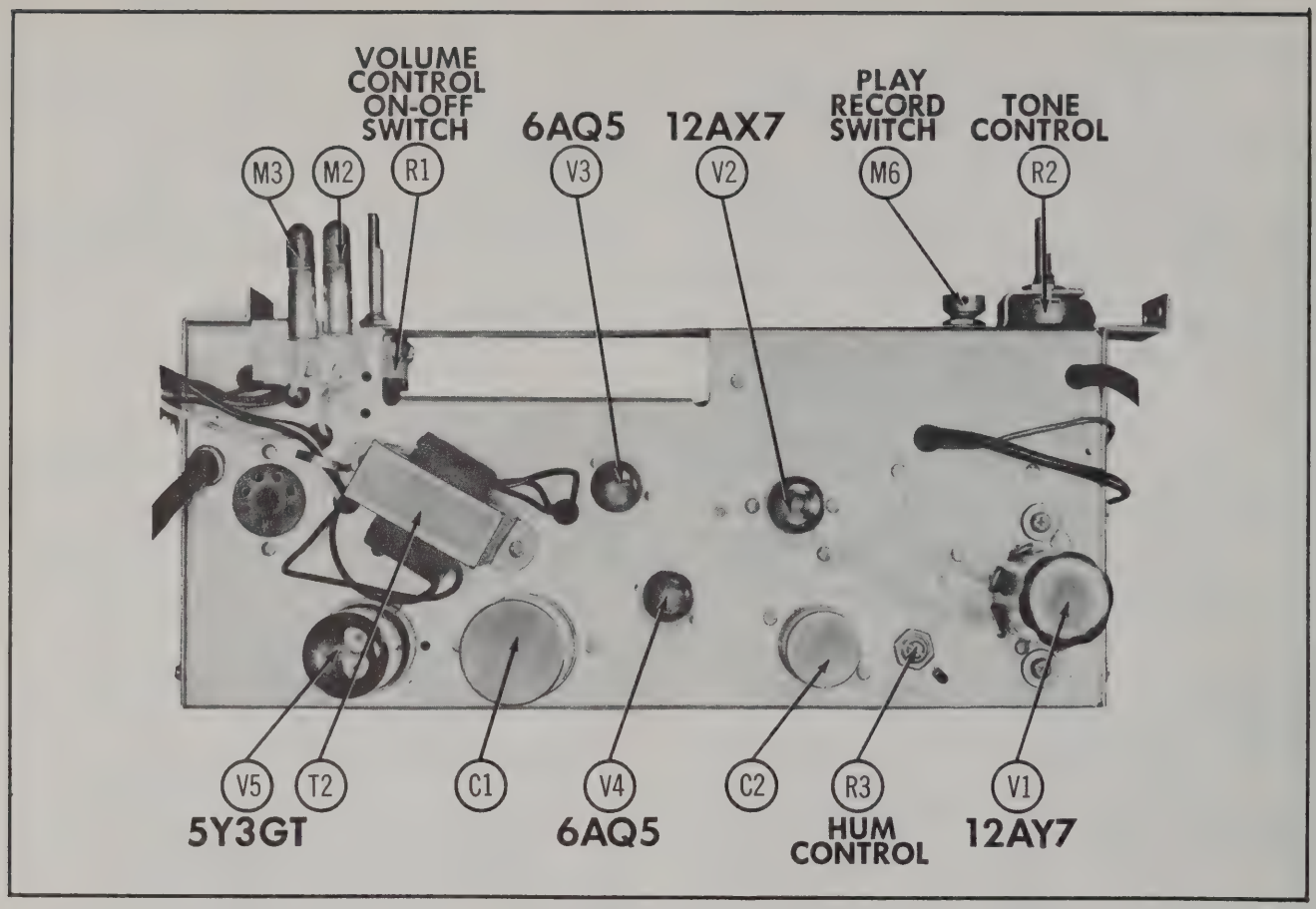


Figure 6

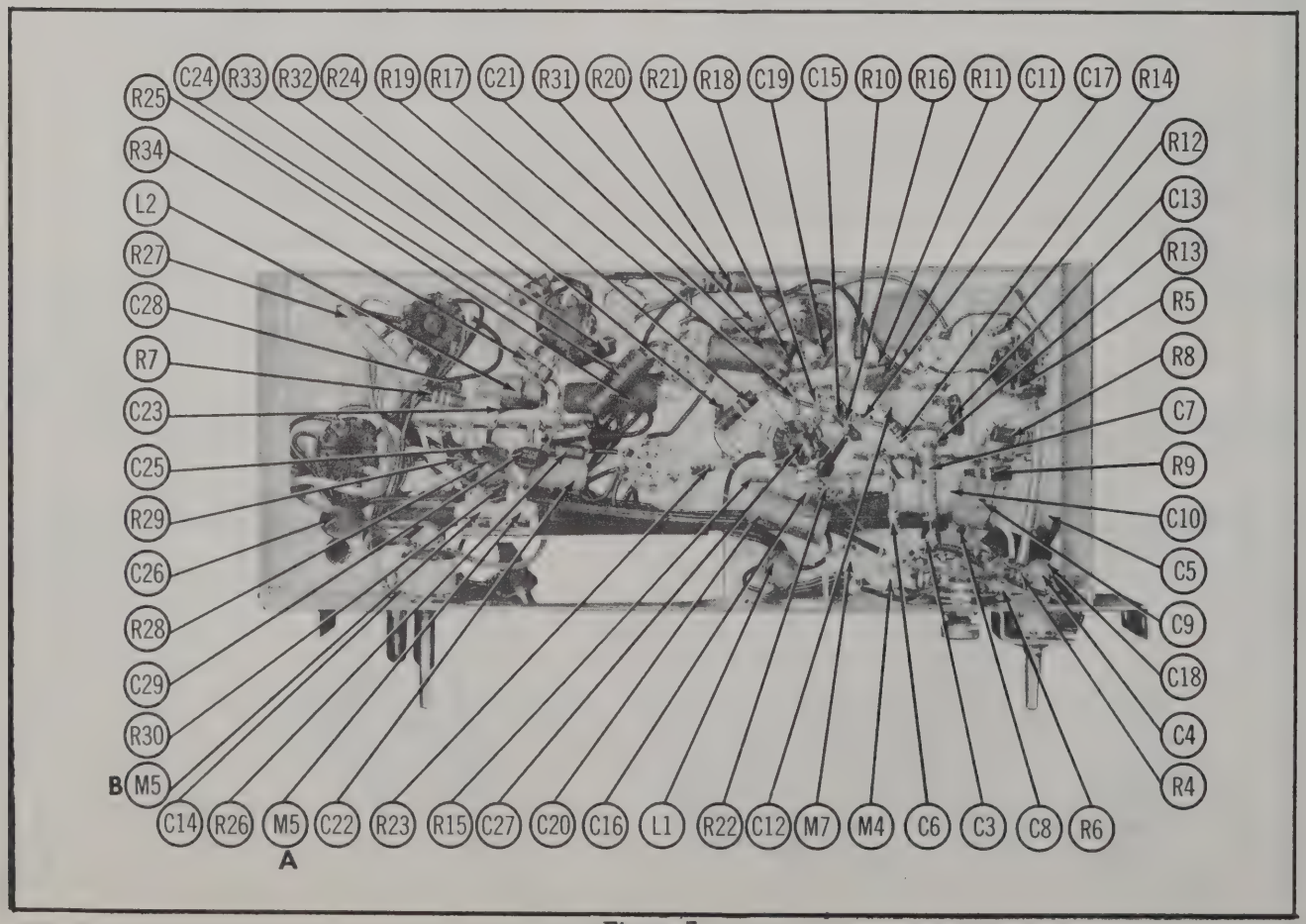


Figure 7

ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
V1	69-2224	12AY7, Bias Osc, Mic. Pre-Amp.	R5	D-7.101-148	Resistor 1.5Meg @ 1/2 W.
V2	69-2175	12AX7, A. F. Amp., Phase Inv.	R6	D-7.101-134	Resistor 680K @ 1/2 W.
V3	69-2171	6AQ5, Output	R7	D-7.102-126	Resistor 270K @ 1 W.
V4	69-2171	6AQ5, Output	R8	D-7.102-80	Resistor 22K @ 1 W.
V5	69-2227	5Y3 GT, Rectifier	R9	D-7.102-112	Resistor 120K @ 1 W.
C1A	C-5.421-7	Elect. Cap., 20MFD @ 450V.	R10	D-7.101-58	Resistor 10K @ 1/2 W.
C1B		Elect. Cap., 20MFD @ 450V.	R11	D-7.101-114	Resistor 220K @ 1/2 W.
C1C		Elect. Cap., 20MFD @ 450V.	R12	D-7.101-178	Resistor 4.7Meg @ 1/2 W.
C1D		Elect. Cap., 20MFD @ 25V.	R13	D-7.101-93	Resistor 68K @ 1/2 W.
C2A	B-5.437	Elect. Cap., 30MFD @ 250V.	R14	D-7.101-128	Resistor 470K @ 1/2 W.
C2B		Elect. Cap., 30MFD @ 250V.	R15	D-7.101-178	Resistor 4.7Meg @ 1/2 W.
C2C		Elect. Cap., 30MFD @ 25V.	R16	D-7.101-114	Resistor 220K @ 1/2 W.
		(No Connection)	R17	D-7.101-155	Resistor 2.2Meg @ 1/2 W.
C3	C-4.109-9	Cap. Ceramic, 1000MMF	R18	D-7.101-44	Resistor 4.7K @ 1/2 W.
C4	C-4.109-13	Cap. Ceramic, 1500MMF	R19	D-7.102-112	Resistor 120K @ 1 W.
C5	D-3.100-18	Cap. Paper, .05MFD @ 200V.	R20	D-7.103-153	Resistor 39K @ 2 W.
C6	C-4.109-13	Cap. Ceramic 1500MMF	R21	D-7.102-112	Resistor 120K @ 1 W.
C7	C-4.109-33	Cap. Ceramic .01MFD @ 500V.	R22	D-7.101-86	Resistor 47K @ 1/2 W.
C8	C-4.109-2	Cap. Ceramic 470MMF	R23	D-7.101-114	Resistor 220K @ 1/2 W.
C9	C-4.109-33	Cap. Ceramic .01MFD @ 500V.	R24	D-7.101-114	Resistor 220K @ 1/2 W.
C10	D-3.100-46	Cap. Paper .035MFD @ 600V.	R25	D-7.103-62	Resistor 270Ω @ 2 W.
C11	B-4.115-1	Cap. Disc .005MFD	R26	D-7.102-72	Resistor 15K @ 1 W.
C12	C-4.109-2	Cap. Ceramic 470MMF	R27	C-6.215-10	Resistor 3.3Ω @ 7 W.
C13	C-4.109-9	Cap. Ceramic 1000MMF	R28	D-7.101-121	Resistor 330K @ 1/2 W.
C14	C-4.109-10	Cap. Ceramic 100MMF	R29	D-7.101-121	Resistor 330K @ 1/2 W.
C15	C-4.109-10	Cap. Ceramic 100MMF	R30	D-7.101-128	Resistor 470K @ 1/2 W.
C16	D-3.100-18	Cap. Paper .05MFD @ 200V.	R31	D-7.102-72	Resistor 15K @ 1 W.
C17	C-4.109-10	Cap. Ceramic 100MMF	R32	D-7.102-23	Resistor 1K @ 1 W.
C18	C-4.109-33	Cap. Ceramic .01MFD @ 500V.	R33	D-7.103-58	Resistor 220Ω @ 2 W.
C19	C-4.109-27	Cap. Ceramic 220MMF	R34	D-7.103-23	Resistor 33Ω @ 2 W.
C20	D-3.100-61	Cap. Paper .047MFD @ 600V.	T1	D-9.262C	Power Transformer
C21	D-3.100-61	Cap. Paper .047MFD @ 600V.	T2	C-9.277-3	Output Transformer
C22	D-3.100-46	Cap. Paper .035MFD @ 600V.	L1	B-1.557	Bias Osc. Coil
C23	D-4.104-88	Cap. Mica .001MFD @ 500V.	L2	B-1.556	Tone Choke
C24	D-3.100-58	Cap. Paper .015MFD @ 600V.	M1	45-2003	Pilot Lamp #44
C25	C-4.109-34	Cap. Ceramic 20MMF	M2	45-2036-0	NE 51 (Normal Ind.)
C26A	B-4.131	Cap. Ceramic 4000MMF	M3	45-2036-0	NE 51 (Overload Ind.)
C26B	B-4.131-1	Cap. Ceramic 4000MMF	M4	C-4.142	Trimmer Bias Adj. (3-35MMF)
C27	C-4.109-13	Cap. Ceramic 1500MMF	M5A	B-4.140	Trimmer Normal Ind.
C28	C-4.109-27	Cap. Ceramic 220MMF			(5-70MMF)
C29	B-4.129-7	Cap. Disc 1500MMF	M5B		Trimmer Overload Ind.
R1	C-8.227-2	Vol. Cont. & Switch 1Meg			(5-70MMF)
R2	C-8.231-1	Tone Cont. 250K	M6A		Play-Record Sw. (Rear)
R3	C-8.207-7	Hum Cont. 500Ω	M6B		Play-Record Sw. (Front)
R4	D-7.101-121	Resistor 330K @ 1/2 W.	M7	C-4.142	Trimmer Bias Osc. Freq. Adj.
					(850-1150MMF)

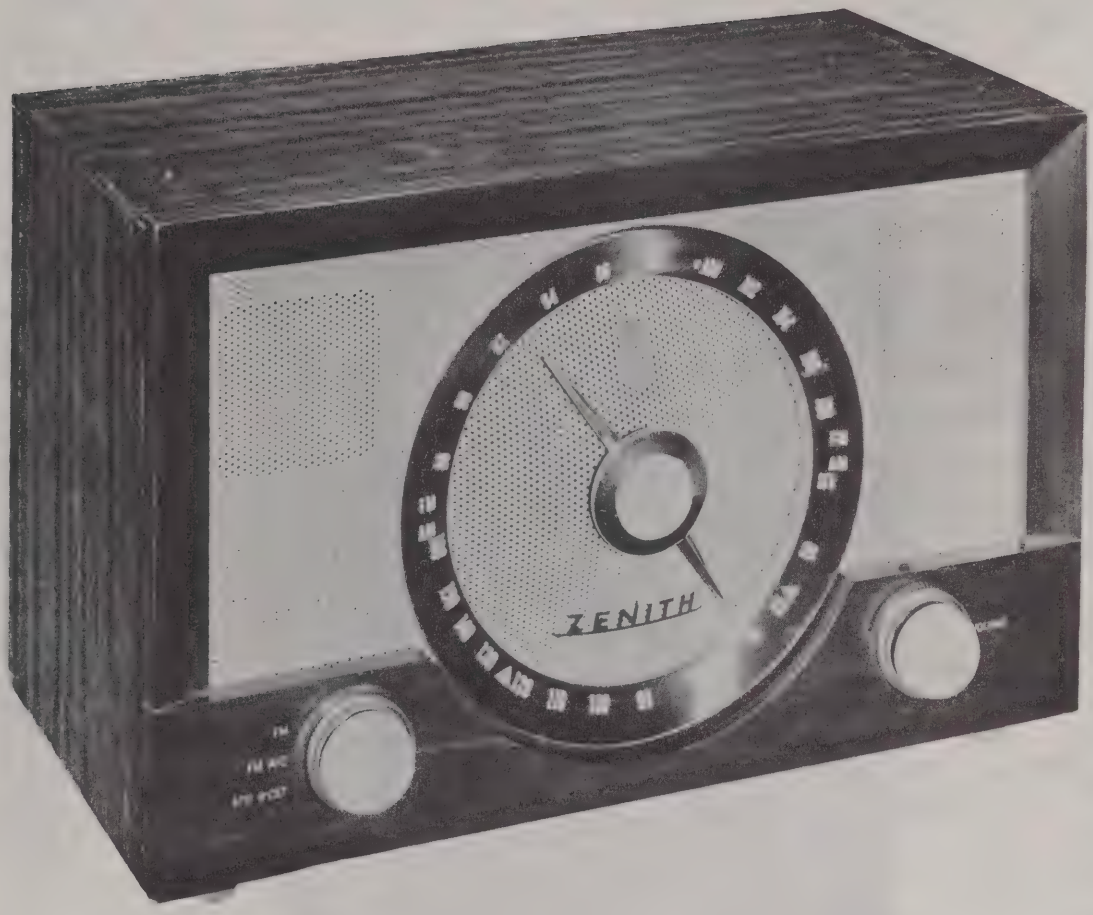
MECHANICAL PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	C-13.253-6	Speed Shift Knob	18	B-13.262-10	Reel Pan On Take-Up Reel
2	57-2049-4	Screw #6-32 x 1/4 BHMS	19	57-3678-1	#4-40 x 5/16 Phillips
3	73-2334-1	#6 Cantlink Washer	20	B-31.351	Reel Drive Spring Belt
4	B-13.262-10	Reel Pan For Feed Reel	21	B-32.302	Timer Knob
5	B-28.163	Linen Washer	22	73-2231-3	#4 Internal Lockwasher
6	D-13.292-3	Rear Escutcheon	23	57-2552-1	#6-32 x 1 1/4 Phillips
7	57.3445-1	#8-32 x 3/8 Phillips RHMS	24	73-2334-1	#6 Cantlink Washer
8	C-13.254-9	Control Knob	25	35-851	Timer Shaft and Pointer Assy.
9	73-2254-3	Felt Washer	26	B-19.975-6	Rear Escutcheon Plate
10	E-13.293	Front Escutcheon	27	B-32.308-1	Record Lock Button
11	48-2213-1	Hex Nut 3/8-32 x 1/2	28	57-2109-2	6-32 x 3/16 Phillips Brz.
12	B-19.985-1A	Bracket for Input Jack	29	33.415	"E" Ring Retainer
13	B-33.453	Midget Jack	30	54-2030-35	Drilled Rivet 1/4 x 122 x 7/32
14	54-2030-35	Drilled Rivet 1/4 x .122 x 7/32	31	73-2231-5	#8 Int. Lockwasher
15	B-33.370	Phono Jack	32	48-410-1	#6-32 Hex Nut
16	73-2254-3	Felt Washer	33	73-2234-3	#6 Ext. Lockwasher
17	57-2552-2	Screw 6-32 x 1 1/4 Phillips	34	48-410-1	#6-32 Hex Nut

MECHANICAL PARTS LIST (Con't.)

Ref. No.	Part No.	Description
35	73-2234-3	#6 Ext. Washer
36	B-19, 876D	Push Button Lever
37	B-33. 446	Spacer
38	D-35-861-3	Base Plate Assy.
39	B-32. 259F	Capstan Shaft
40	B-31. 337B	Push Button Return Spring
41	B-19. 859-1	Hinge Bracket for Push Button
42	57-3445-1	#8-32 x 3/ 8 RHMS
43	B-19. 870	Locking Plate for Push Buttons
44	B-31. 343	Lock Plate Spring
45	73-2231-4	#6 Int. Lockwasher
46	57-3603-1	#6-32 x 1/ 2 Phillips
47	57-3439-1	6-32 x 3/ 16 Bristol Head Set Screw
48	B-32. 300	Tape Guide Post (Left)
49		6-32 Hex Nut
50	B-32. 260	Tape Guide Post Spacer
51	B-35. 794	Erase Head Plate Assembly
52	B-31. 347	Erase Head Tension Spring
53	B-31. 334	Pressure Pad (Felt) 2 used
54	57-428-1	#6-32 x 3/ 8 RHMS
55	73-2233-1	Int. Lockwasher
56	48-2216-1	#2-56 x 3/ 16 Hex Nut
57	C-35. 756	Erase Head
58	B-35. 766	Record Actuating Lever Assy.
59	B-32. 309	Tape Guide Post (Right)
60	C-36. 156	Tape Recording Head (Shure TR16H)
61	B-19. 881	Playback Actuating Lever
62	73-2241-148	Flat Washer
63	B-31. 336	Pinch Roller Tension Spring
64	B-35. 758	Playback Slide Plate Assembly
65	B-35. 764	Pressure Pad Spring Assembly
66	B-33. 412	Push-On-Stud Nut, 3/ 16" Stud
67	B-19. 868	Record Slide Plate
68	B-33. 409	Hairpin Clip
69	73-2340	Linen Washer
70	B-33. 404	Pinch Roller
71	B-19. 858	Push Button Retainer
72	73-. 824	Linen Washer
73	B-35. 824	Pinch Roller Plate Assy.
74	110-48	Switch Lever Assembly
75	B-31. 338	Brake Return Spring
76	C-35. 835	Brake Slide Plate Assy.
77	B-33. 412	Push-On-Stud Nut, 3/ 16 Stud
78	B-31. 339	Idler Lever Tension Spring
79	B-35. 759	Shift Plate Assembly
80	B-35. 774	Record Interlock Assy.
81	B-31. 333	Switch Arm Link
82	73-2241-118	Flat Washer
83	54-2030-35	Drilled Rivet 1/ 4 x 122 x 7/ 32
84		Bottom View of Item 38
85	73-2231-5	#8 Int. Lockwasher
86	57-2102-3	#8-32 x 1/ 4 RHMS
87	B-19. 863	Drive Mounting Plate Bracket
88	D-33. 445	Gear Train for Tape Index
89	B-32. 301	Brake Drum Shaft (Grooved)
90	B-28. 163	Linen Washer
91	C-35. 823	Brake Drum & Bushing Assy.
92	B-35. 757	Sub Idler Plate Assy.
93	B-32. 275-1	#8-32 HH Shoulder Screw
94	B-35. 405	Sub Idler Wheel
95	73-2254-6	Felt Washer
96	73-2241-150	Flat Washer
97	B-33. 409	Hairpin Clip
98	B-33. 118	Spacer
99	73-2241-150	Flat Washer
100	B-33. 418	Tru-Arc Retainer "E" Ring
101	73-2254-6	Felt Washer
102	B-33. 406	Idler Drive Sheave
103	B-28. 162	Idler Drive Belt
104	C-35. 816	Speed Control Shaft Assy.
105	57-3589-1	8-32 x 1/ 4 Bristol Head Set Screw
106	57-2109-2	#6-32 x 3/ 16 Phillips
107	57-3679-1	#6-32 x 7/ 8 Phillips
108	57-3589-1	8-32 x 1/ 4 Bristol Head Set Screw
109	B-35. 755-2	Push Button Assembly
110	D-35. 753-1	Drive Mounting Plate Assy.
111	73-2231-5	Internal Lockwasher
112	57-2102-3	#8-32 x 1/ 4 RHMS
113	B-28-159	Shock Mount
114	B-19-840E	Steady Bracket
115	B-23. 163	Linen Washer
116	C-13. 257-1	Flywheel
117	B-28. 163	Linen Washer
118	B-32. 297	Brake Drum Shaft
119		Erase Head Forward Adjustment Screw
120	73-2231-5	Internal Lockwasher
121	57-2102-3	#8-32 x 1/ 4 RHMS
122	B-19. 862	Angle Bracket for Mounting Drive Assembly
123	C-19. 837	Motor Adapter Plate
124	73-2231-5	#8 Int. Lockwasher
125	57-2102-3	#8-32 x 1/ 4 RHMS
126	B-33. 411	Flat Washer
127	73-2231-5	#8 Internal Lockwasher
128	48-409-1	#8-32 x 5/ 16 Hex Nut
129	D-36. 153E	Motor, Round Type (Fasco)
	D-36. 154G	Motor, Square Type (G. I. and Alliance)
130	B-33. 418	Tru-Arc Retaining "E" ring
131	73-2241-143	Flat Washer
132	73-2254-3	Felt Washer
133	C-19. 887	Fan Blade
134	73-2254-3	Felt Washer
135	73-2241-143	Flat Washer
136	33. 415	Push-On Fastener
138	35. 834	Idler Lever Assy.
139	97-3062	Brake Spring
140	B-31. 335	Brake Pad, Felt
141	57. 3683-1	#8-32 x 1/ 4 Undercut Flat Head
142	B-33. 409	Hairpin Clip
143	B-28. 163	Linen Washer
144	B-33. 408	Rubber Bonded Idler Wheel, 2 1/ 2" Dia.
145	B-28. 163	Linen Washer
146	B-31. 327	Idler Lift Compression Spring
147	B-32. 288	Motor Pulley
148	57-2102-3	#8-32 x 1/ 4 RHMS
149	73-2231-5	#8 Internal Lockwasher
150	73-2241-143	Flat Washer
151	110-47	Idler Throw-Out Lever
152	B-32. 291	Shoulder Washer
154	B-31. 324	Idler Spring (Tension)
155	57-2109-2	#6-32 x 3/ 16 Phillips
156	B-19. 961	Speed Control Shaft Detent Spring
157	B-33. 407-1	"C" Washer
158	51-3182	Shift Plate for High Speed
159	57-2109-2	#6-32 x 3/ 16 Phillips
160	B-31. 324	Idler Spring (Tension)
161	B-32. 264	Idler Slide Bushing
162	B-35. 768	Idler Slide Plate Assembly
163	57-3589-1	#8-32 x 1/ 4 Bristol Hd. Set Screw

ZENITH MODEL
Y832E, R (Ch. 8Y02)



ZENITH MODEL
Y832E, R (Ch. 8Y02)

TRADE NAME	Zenith Models Y832E, Y832R (Ch. 8Y02)		
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Ill.		
TYPE SET	AC-DC Operated FM-AM Superheterodyne Receiver		
TUBES	Eight		
POWER SUPPLY	110-120 Volts AC-DC	RATING	.30 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	540KC-1620KC	FREQ. MOD.	88MC-108MC

3924 W. 32nd St.
DENVER, COLORADO

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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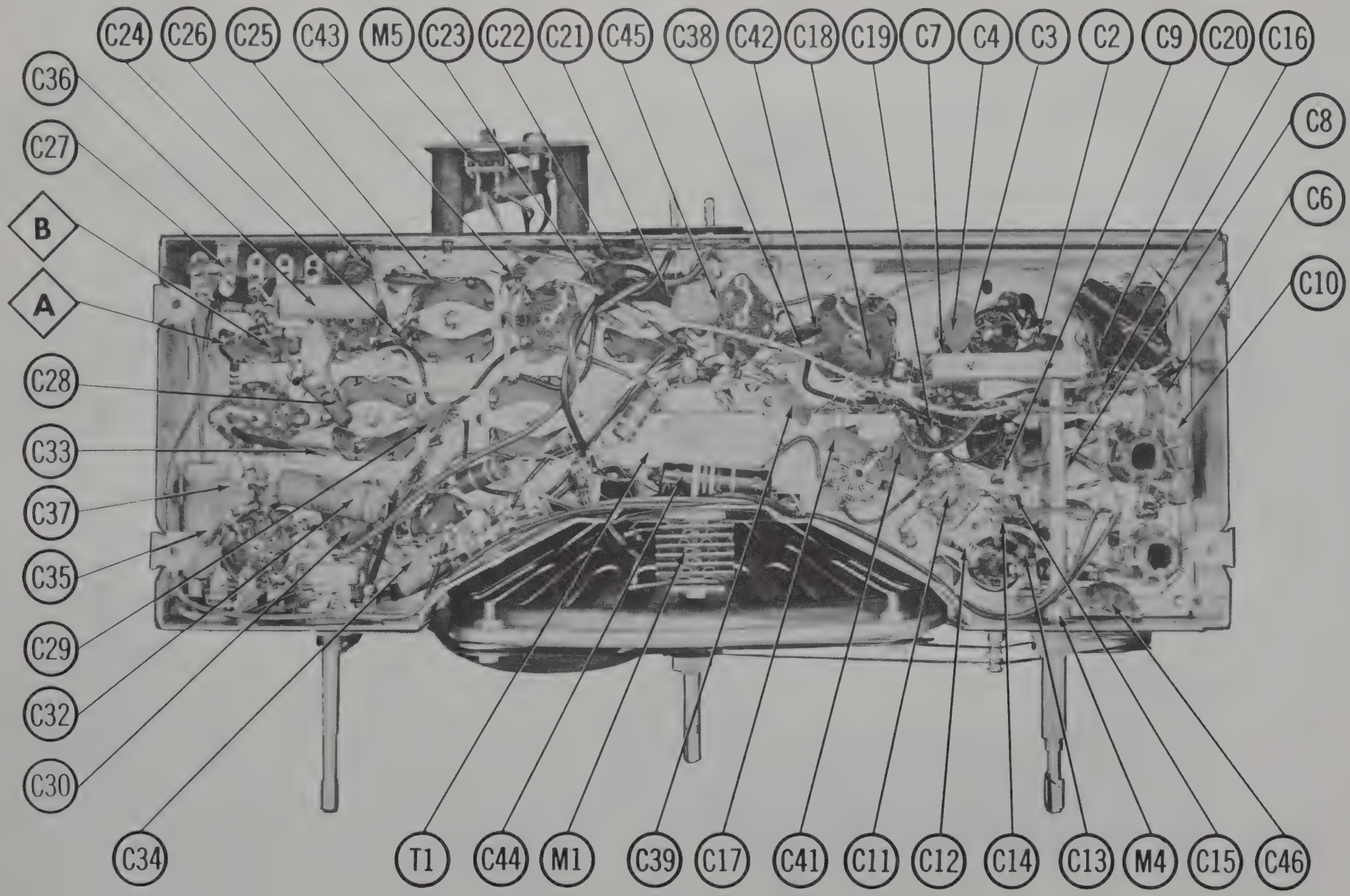
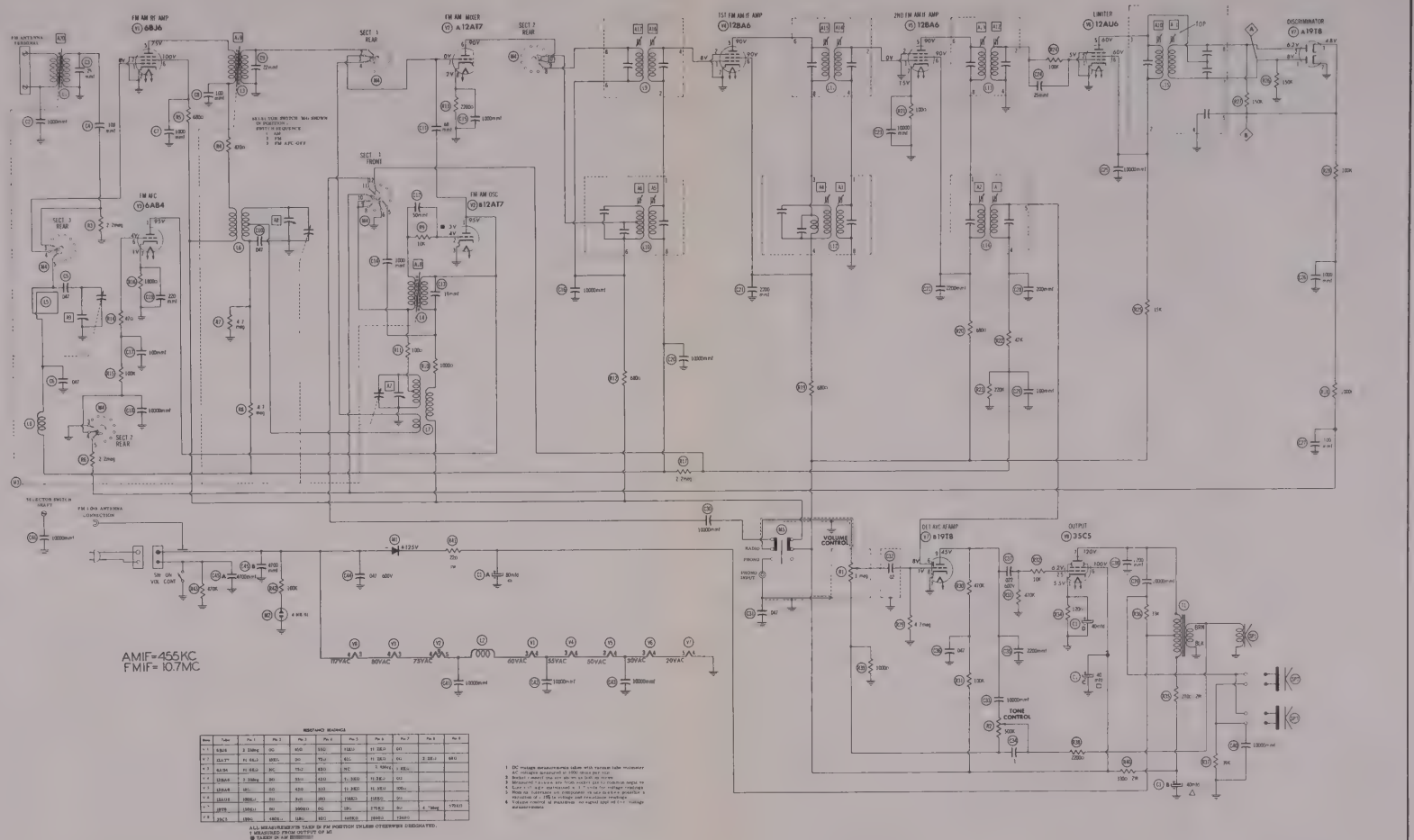


CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BJ6	2.2Meg	0Ω	450	550	11KΩ	11.2KΩ	6Ω		
V 2	12AT7*	11.5KΩ	680Ω	2Ω	75Ω	62Ω	11.2KΩ	0Ω	2.2K Ω	680
V 3	6AB4	11.5KΩ	90Ω	75Ω	450	90Ω	1.5MΩ	1.5MΩ		
V 4	12BA6	2.2Meg	0Ω	55Ω	420	11.5KΩ	11.5KΩ	0Ω		
V 5	12BA6	90Ω	0Ω	45Ω	360	11.5KΩ	11.5KΩ	90Ω		
V 6	12AU6	180Ω	0Ω	3Ω	0Ω	11KΩ	11KΩ	0Ω		
V 7	1B78	1.5MΩ	0Ω	2450Ω	0Ω	0Ω	270KΩ	0Ω	4.7Meg	470KΩ
V 8	35C5	1.5MΩ	470Ω	1.5MΩ	0Ω	0Ω	2640Ω	730Ω		

ALL MEASUREMENTS TAKEN IN FM POSITION UNLESS OTHERWISE DESIGNATED.
* MEASURED FROM OUTPUT OF M1
■ TAKEN IN AM

1 DC voltage measurements taken with vacuum tube voltmeter and volume control at min. unless otherwise noted.
2 Resistance measurements taken with power off.
3 Measured values are from shaft of to indicate angle to turn (°) right (clockwise) as it faces for voltage readings.
4 Readings between points connected to selector switch positions 1 and 2 are for voltage and resistance readings.
5 Tolerance of ± 10% is maximum. No signal applied unless voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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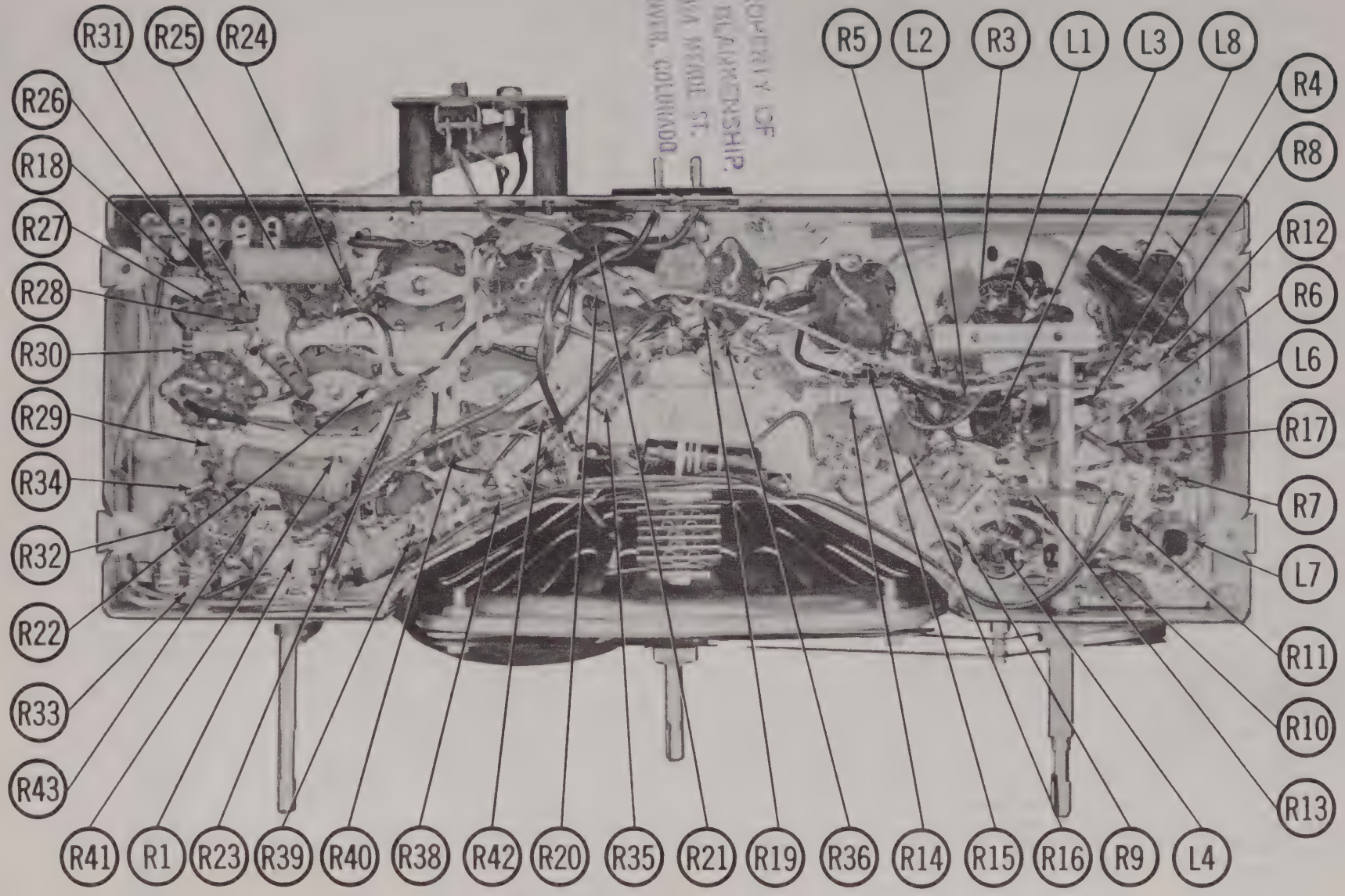

CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
To set pointer, turn tuning capacitor fully closed and set pointer parallel with base of dial.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05MFD	High side to pin 2 (grid) of 12AT7 (V2). Low side to chassis.	455KC (400∿ Mod.)	BC	600KC	Across Voice Coil	A1, A2, A3, A4, A5, A6	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1600KC	"	1600KC	"	A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	"	Tune to 1400KC signal	"	A8, A9	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Use 2Meg isolation resistor in series with DC probe.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	.05MFD	High side to pin 1 (grid) of 12AU6 (V6). Low side to chassis.	10.7MC (Unmod.)	FM	Point of non-interference	DC probe to point Ⓐ. Common to chassis.	A10	Adjust for maximum deflection.
5.	"	"	"	"	"	DC probe to point Ⓑ. Common to chassis.	A11	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
6.	"	High side to pin 1 (grid) of 12BA6 (V5). Low side to chassis.	"	"	"	DC probe to pin 1 (grid) of 12AU6 (V6). Common to chassis.	A12, A13	Adjust for maximum deflection.
7.	"	High side to pin 1 (grid) of 12BA6 (V4). Low side to chassis.	"	"	"	"	A14, A15	"
8.	"	High side to pin 7 (grid) of 12AT7 (V2). Low side to chassis.	"	"	"	"	A16, A17	Adjust for maximum deflection. Repeat steps 6, 7, and 8.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	.05MFD	High side to pin 1 (grid) of 12AU6 (V6). Low side to chassis.	10.7MC (450KC Swp)	FM	Point of non-interference	Vert. amp. to point Ⓐ. Low side to chassis.	A10	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
5.	"	"	"	"	"	Vert. amp. to point Ⓑ. Low side to chassis.	A11	Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A10 for maximum amplitude and straightness of cro sover lines.
6.	"	High side to pin 1 (grid) of 12BA6 (V5). Low side to chassis.	"	"	"	Vert. amp. to pin 1 (grid) of 12AU6 (V6). Low side to chassis.	A12, A13	Adjust for curve of maximum amplitude a and symmetry similar to Fig. 1.
7.	"	High side to pin 1 (grid) of 12BA6 (V4). Low side to chassis.	"	"	"	"	A14, A15	"
8.	"	High side to pin 7 (grid) of 12AT7 (V2). Low side to chassis.	"	"	"	"	A16, A17	"

FM RF ALIGNMENT

Use 2Meg isolation resistor in series with DC probe.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
9.	270Ω Carbon Resistor	High side thru 270Ω to FM antenna terminal. Low side to terminal "G".	98MC (Unmod.)	FM	98MC	DC probe to pin 1 (grid) of 12AU6 (V6). Common to chassis.	A18, A19, A20	Adjust in order given, for maximum deflection.

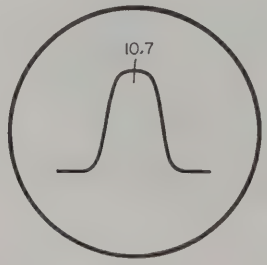

FIG. 1

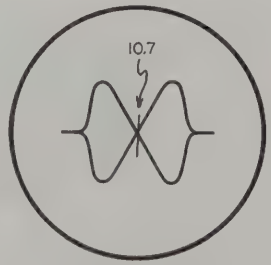

FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM-AM RF Amplifier	6BJ6	
V2	FM-AM Mixer-Osc.	12AT7	
V3	FM AFC	6AB4	
V4	1st FM-AM IF Amplifier	12BA6	
V5	2nd FM-AM IF Amplifier	12BA6	
V6	Limiter	12AU6	
V7	Disc.-AM Det.-AVC-AF Amp.	19T8	
V8	Output	35C5	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲ 80	150	22-1661	AFH4-37-10	D032	FP411.32	TM036	Q-120	TVL-4670
B	▲ 40	150							
C	■ 40	150							
D	40	25							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	1000		22-1676	SU1000	D6-102	TP52	GP21.-102	UC-521	5HK-D1	
C3	25		22-2060							
C4	100		22-5	BPD-0001	DD-101	G042	801-101	UC-531	5GA-T1	
C5	.047	200	22-2782	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C6	.047	200	22-2782	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C7	1000		22-1676	SU1000	D6-102	TP52	GP21.-102	UC-521	5HK-D1	
C8	100		22-5	BPD-0001	DD-101	G042	801-101	UC-531	5GA-T1	
C9	22		22-1506	N080-S122						
C10	.047	200	22-2782	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C11	.68		22-1766		TCZ-R68	T202	NPOA-R68			
C12	50		22-1367							
C13	19		22-2630							
C14	1000		22-1676	SU1000	D6-102	TP52	GP21.-102	UC-521	5HK-D1	
C15	1000		22-1676	SU1000	D6-102	TP52	GP21.-102	UC-521	5HK-D1	
C16	10000		22-3	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C17	100		22-9	BPD-0001	DD-101	G042	801-101	UC-531	5GA-T1	
C18	10000		22-3	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C19	220		22-2321	SI220	D6-221	TP39	GP2K-221	UC-5322	5GA-T22	
C20	10000		22-3	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C21	2200		22-18	BPD-0022	DD-222	K073	811-0022	UC-5222	5HK-D22	
C22	2200		22-18	BPD-0022	DD-222	K073	811-0022	UC-5222	5HK-D22	
C23	10000		22-3	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C24	25		22-1887	SI25	D6-250	TP25	GP1K-250	UC-5425	5GA-Q25	
C25	10000		22-3	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C26	1000		22-17	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C27	100		22-5	BPD-0001	DD-101	G042	801-101	UC-531	5GA-T1	
C28	200		22-1668	SI200	D6-201	TP38	GP2K-201	UC-532	5GA-T2	
C29	100		22-5	SU100	D6-101	TP34	GP1K-101	UC-531	5GA-T1	
C30	10000		22-3	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C31	.047	200	22-2782	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C32	.02	400	22-1683	BPD-02	DD-203	CUB4S2	817-02	PT412	4TM-S2	
C33	10000		22-3	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C34	.1	400	22-2780	P488N-1	DF-104	CUB4P1		PT401	4TM-P1	
C35	2200		22-18	BPD-0022	DD-222	K073	811-0022	UC-5222	5HK-D22	
C36	.047	200	22-2782	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C37	.022	600	22-2806	BPD-02	DD-203	CUB6S22	817-02	PT6122	6TM-S22	
C38	2200		22-18	BPD-0022	DD-222	K073	811-0022	UC-5222	5HK-D22	
C39	10000		22-3	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C40	10000		22-3	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C41	10000		22-3	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C42	10000		22-3	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C43	10000		22-3	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C44	.047	600	22-2569	BPD-05	DF-503	CUB6S47		PT6147	6TM-S47	
C45A	4700		22-24	BPD-2X0047	DD2-502	DK079	811-0047	DC-525	5HK-2D47	
B	4700						811-0047	DC-525		
C46	10000		22-3	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	

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3924 MEADE ST.
DENVER, COLORADO

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1Meg	1/2	63-3613	AB-70	A47-1Meg-Z	Q13-137	U53	Volume
B	Shaft		Not Req.	AK-4	KSS-3	Not Req.	Not Req.	Attach to R1A.
C	Switch		Not Req.	KB-1	SWE-12	76-1	US-26	" " "
R2	500KΩ	1/2	63-3276					Tone

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ZENITH PART No.	IRC PART No.	
R3	2.2Meg		63-1926	BTS-2.2Meg	
R4	470Ω		63-1772	BTS-470	
R5	680Ω		63-1779	BTS-680	
R6	2.2Meg		63-1926	BTS-2.2Meg	
R7	4.7Meg		63-1940	BTS-4.7Meg	
R8	4.7Meg		63-1940	BTS-4.7Meg	
R9	10KΩ		63-1828	BTS-10K	
R10	1000Ω		63-1785	BTS-1000	
R11	100Ω		63-1744	BTS-100	
R12	680Ω		63-1779	BTS-680	
R13	2200Ω		63-1799	BTS-2200	
R14	47Ω		63-1730	BTS-47	
R15	100KΩ		63-1869	BTS-100K	
R16	1800Ω		63-1796	BTS-1800	
R17	2.2Meg		63-1926	BTS-2.2Meg	
R18	1000Ω		63-1785	BTS-1000	
R19	680Ω		63-1779	BTS-680	
R20	680Ω		63-1779	BTS-680	
R21	100Ω		63-1744	BTS-100	
R22	47KΩ		63-1856	BTS-47K	
R23	220KΩ		63-1884	BTS-220K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ZENITH PART No.	IRC PART No.	
R24	100KΩ		63-1870	BTS-100K	
R25	15KΩ		63-1835	BTS-15K	
R26	150KΩ		63-1876	BTS-150K	
R27	150KΩ		63-1876	BTS-150K	
R28	100KΩ		63-1870	BTS-100K	
R29	4.7Meg		63-1940	BTS-4.7Meg	
R30	470KΩ		63-1898	BTS-470K	
R31	100KΩ		63-1870	BTS-100K	
R32	10KΩ		63-1828	BTS-10K	
R33	470KΩ		63-1898	BTS-470K	
R34	120Ω		63-1747	BTS-120	
R35	270Ω	2	63-3232	BTB-270	
R36	33KΩ		63-1848	BTS-33K	
R37	39KΩ		63-1852	BTS-39K	
R38	2200Ω		63-1800	BTS-2200	
R39	1000Ω		63-1876	BTS-1000	
R40	330Ω	2	63-1622	BTB-330	
R41	22Ω	1	63-3197	BTA-22	
R42	100KΩ		63-1870	BTS-100K	
R43	470KΩ		63-1898	BTS-470K	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2.3KΩ	3-4Ω	95-1315	Z1102 ①	A-3031 ①	A-3330 ①	24S50A ①	S-16X ①	① Drill new mtg. holes.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	QUAM PART No.	RCA TYPE No.	
SP1	7½"	PM	3-4Ω	49-608	8A31	208S2	① Electrostatic Speakers
SP2				S-23829 ①			
SP3				S-23829 ①			

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	ZENITH PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	FM Ant. Coil	0Ω	0Ω	S-14192				
L2	Fil. Choke	1Ω		S-13997	19-1005		4612	9.5 Microhenries
L3	FM RF Coil	0Ω	0Ω	S-15743				
L4	FM Osc. Coil	0Ω	0Ω	S-15691				
L5	AM Loop Ant.	1.7Ω		S-23920				
L6	AM RF Coil	2.8Ω	4.6 *	S-16344				* Tapped ② 3.4Ω
L7	AM Osc. Coil	1.2Ω	9Ω ■	S-16345				■ Tapped ② 3.7Ω Tertiary Winding=1.2Ω
L8	RF Coil	.1Ω		20-337	19-1003		4608	
L9	1st FM IF	.4Ω	.4Ω	95-1201	16-6665 ▲	FM-251	1451	
L10	1st AM IF	4.6Ω	17Ω	95-1248				
L11	2nd FM IF	.4Ω	.4Ω	95-1150	16-3487 †	FM-251	1451	
L12	2nd AM IF	.5Ω		95-1249				
L13	3rd FM IF	.4Ω	.4Ω	95-1150	16-3487 †	FM-251	1451	
L14	3rd AM IF	17Ω	11Ω	95-1254	16-5742	BC-340	912-C4	
L15	Discriminator	.4Ω	.5ΩCT	95-1153				

▲ Drill new mounting holes.
† Use adaptor plate.

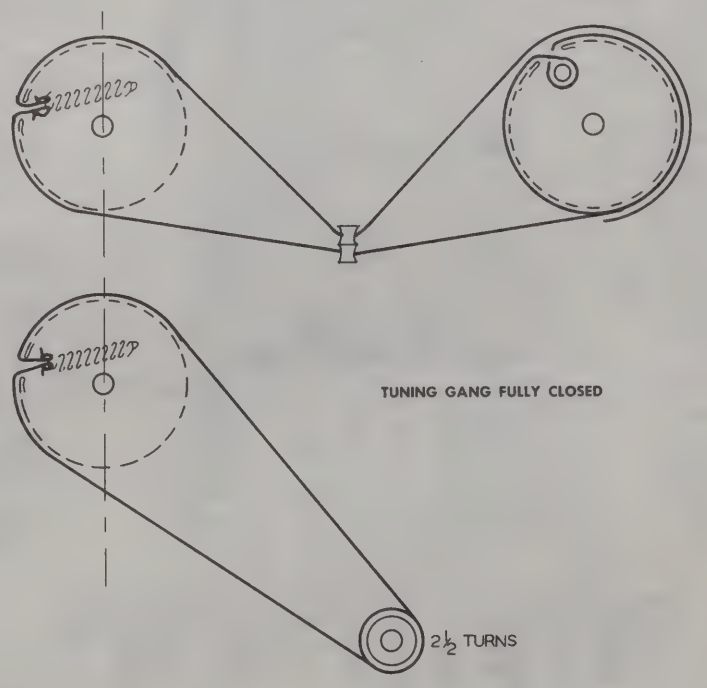
PARTS LIST AND DESCRIPTIONS (Continued)

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	ZENITH PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	
M1	.083A	212-13	1005A	RS-100	6S100	5M1	100A	

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M2	Pilot Light	100-105	#NE51
M3	Tuning Cap.	22-1677	3 Gang (24-410MMF, 16-213MMF, 18-92MMF)
M4	Switch	85-574	Selector (Rotary, Wafer Type)
M5	Switch	85-495	Radio-Phono (DPDT-Slide Type)
	Cabinet	14-1952E	Model Y832E
	Cabinet	14-1952R	Model Y832R
	Knob	46-538	Tuning
	Knob	46-979	Selector Switch
	Knob	46-980	Tone
	Dial Scale	26-536	
	Dial Scale	52-292	



DIAL CORD STRINGING

MAGNAVOX CHASSIS (600 Series)

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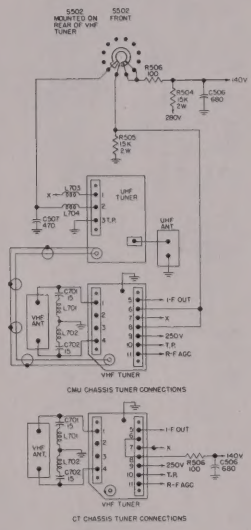
CMUA476CC	CTA476CC
CMUA479CC	CTA479CC
CMUA480CC	CTA480CC
CMUA481CC	CTA481CC



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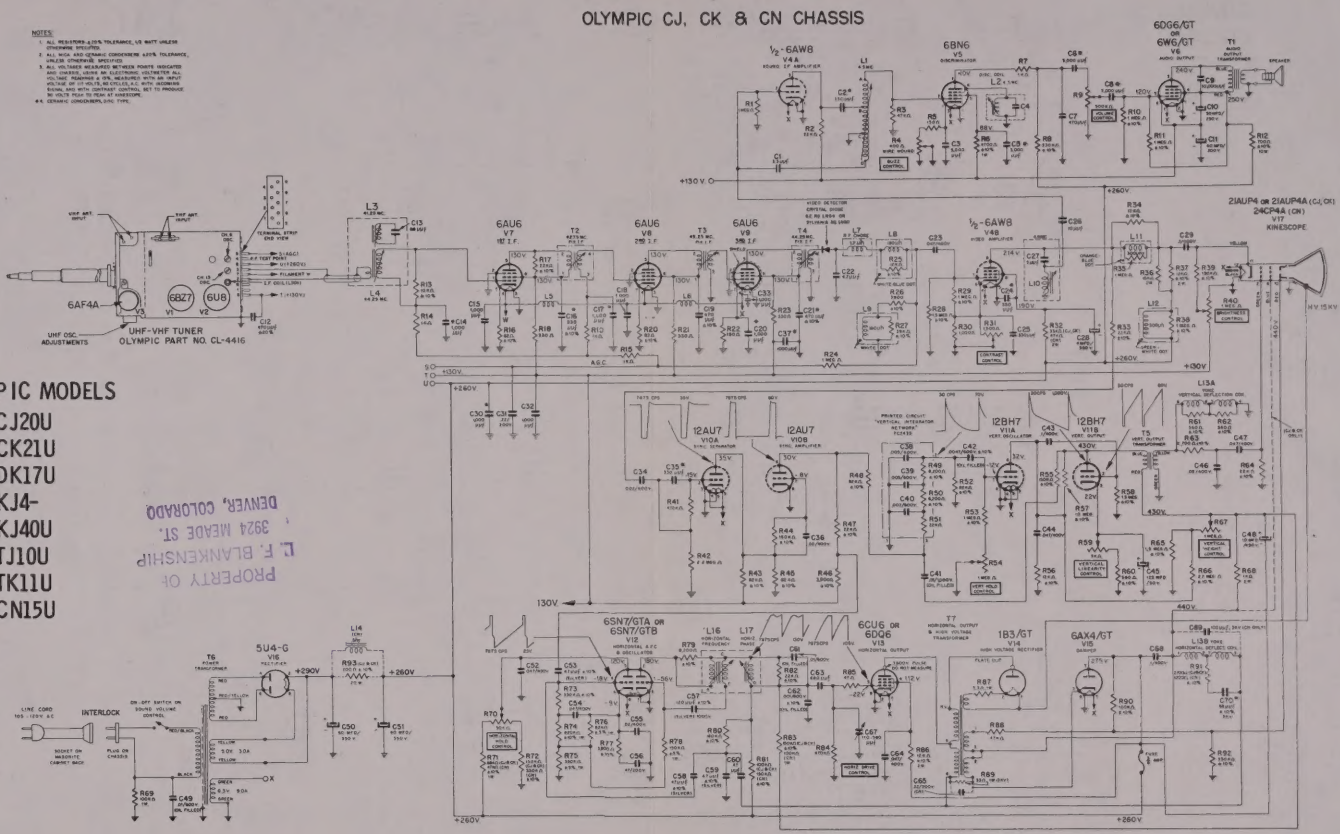

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